Presidio Trust

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March 7, 2014

Mr. Robert Boggs
Department of Toxic Substances Control
700 Heinz Avenue
Berkeley, CA 94710

Subject: Transmittal of Construction Completion Report and Request for Site Certification, Baker Beach Disturbed Area 1A, Presidio of San Francisco, California

Dear Mr. Boggs:

Enclosed please find a copy of the Construction Completion Report (CCR) for Baker Beach Disturbed Area 1A (BBDA 1A, the Site) for your review and approval. The CCR was prepared by AMEC, on behalf of the Presidio Trust, and documents the implementation of remedial actions at the Site as outlined in the approved Remedial Action Plan. The CCR incorporates red-lined revisions sent to DTSC on March 2, 2014 in response to DTSC comments dated February 25, 2014 and was finalized per DTSC email dated March 3, 2014.

The identified future land use of BBDA 1A is recreational. Native plants were planted at BBDA 1A in January 2014. Vegetative monitoring will be conducted monthly, during the one-year plant establishment phase.

In conformance with the requirements of Section 5.16 of the Consent Agreement between the Trust, National Park Service and DTSC, we would like to request site certification for BBDA 1A.

Please feel free to contact me (415) 561-4259 or Angela Cutting (510) 828-4248 if you have any additional comments or concerns.

Sincerely,

Eileen Fanelli

Eileen Fanelli
Environmental Remediation Program Manager

Enclosure: Construction Completion Report, Baker Beach Disturbed Area 1A, Presidio of San Francisco, California

cc: Angela Liang Cutting, Roux Associates
Brian Ullensvang, NPS
RAB Members
Agnes Farres, Regional Water Quality Control Board

Final
Construction Completion Report
Remedial Design Implementation

Baker Beach Disturbed Area 1A
Presidio of San Francisco, California

Prepared for:

The Presidio Trust
67 Martinez Street
P.O. Box 29052
San Francisco, California 94129

Prepared by:

AMEC Environment & Infrastructure, Inc.
2101 Webster Street, 12th Floor
Oakland, California 94612

March 2014

Project No. OD13164640.06

FINAL
CONSTRUCTION COMPLETION REPORT
REMEDIAL DESIGN IMPLEMENTATION
Baker Beach Disturbed Area 1A
Presidio of San Francisco, California

March 2014
Project OD13164640.06

This report was prepared by the staff of AMEC under the supervision of the Engineer(s) and/or Geologist(s) whose seal(s) and signature(s) appear hereon.

The findings, recommendations, specifications, or professional opinions are presented within the limits described by the client, in accordance with generally accepted professional engineering and geologic practice. No warranty is expressed or implied.

Douglas C. Bablitch, P.E. C64096

Mary Jo Heassler, P.G.
Associate Geologist

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ACRONYMS AND ABBREVIATIONS

4,4'-DDT	4,4'-dichlorodiphenyltrichloroethane
AB	aggregate base
AIMP	Archaeological Identification and Monitoring Plan
AIMR	Archaeological Investigation and Monitoring Report
AMEC	AMEC Environment & Infrastructure, Inc.
ARARs	Applicable or Relevant and Appropriate Requirements
BBDA 1A	Baker Beach Disturbed Area 1A
BaP	benzo(a)pyrene
bgs	below ground surface
BMPs	best management practices
C&T	Curtis & Tompkins Laboratory
CM	Construction Manager
CO	Change Order
COCs	chemicals of concern
Conservancy	Golden Gate National Parks Conservancy
CQA	Construction Quality Assurance
CSAP	Confirmation Sampling and Analysis Plan
cy	cubic yards
DI	Decker Island
DTSC	California Environmental Protection Agency Department of Toxic Substances Control
EDD	electronic disc deliverable
EPA	United States Environmental Protection Agency
F_3	F_3 and Associates, Inc
FORD	Ford Construction
FS/RAP	Feasibility Study/Remedial Action Plan
FSTPs	frontal slope test pits
GGBHTD	Golden Gate Bridge Highway and Transportation District
GPS	global positioning system
HASP	Health and Safety Plan
ID	identification
Mabey	Mabey Bridge and Shore, Inc.
mg/kg	milligrams per kilogram
NAVD 88	North American Vertical Datum 88
NPS	National Park Service
QAPP	Quality Assurance Project Plan
PAHs	polycyclic aromatic hydrocarbons
PICs	public information coordinators
PM	Project Manager
PM_{10}	particulate matter less than 10 microns in diameter
Presidio	Presidio of San Francisco
PTC	Professional Tree Care Company
PVC	polyvinyl chloride
RAOs	remedial action objectives
RDIP	Remedial Design Implementation Plan
Roux Associates	Roux Associates, Inc.

ACRONYMS AND ABBREVIATIONS (CONTINED)

Site	Baker Beach Disturbed Area 1A
SWPPP	Storm Water Pollution Prevention Plan
Trust	Presidio Trust
UCL	upper confidence limit
WJE	Wiss, Janney, Elstner Associates, Inc.

CONSTRUCTION COMPLETION REPORT
REMEDIAL ACTION PLAN IMPLEMENTATION
Baker Beach Disturbed Area 1A
Presidio of San Francisco, California

1.0 INTRODUCTION

1.1 PURPOSE

This Construction Completion Report was prepared by AMEC Environment & Infrastructure, Inc. (AMEC) on behalf of the Presidio Trust (Trust) to describe and document activities associated with remediation of Baker Beach Disturbed Area 1A (BBDA 1A; the Site) at the Presidio of San Francisco, California (Presidio, Figure 1). Remedial construction at BBDA 1A was performed in accordance with the *Final Feasibility Study and Remedial Action Plan, Baker Beach Disturbed Area 1A, Presidio of San Francisco, California* (FS/RAP; AMEC, 2013a), *Final Remedial Design Implementation Plan, Baker Beach Disturbed Area 1A, Presidio of San Francisco, California* (RDIP; AMEC, 2013b), *100% Remedial Design Drawings and Specifications and Amendments to the Remedial Design Drawings and Specifications* (AMEC, 2013c).

1.2 BACKGROUND

BBDA 1A is situated on a sloping bluff top above Baker Beach, south of the Golden Gate Bridge and west of the Golden Gate Bridge Highway and Transportation District (GGBHTD) corporation yard and Highway 101 (Figure 2). The Site is bounded to the east by two early 1900's (Endicott era) gun emplacements or batteries (Cranston and Marcus Miller); to the north by fencing and a paved access road; to the west by steep bluff slopes leading down to Baker Beach; and to the south by BBDA 1, a former Army-era landfill that was remediated by the Trust in 2007 and 2008. The Site includes earthen fill placed on the battery frontal slopes that is referred to as "battery earthworks." A portion of the battery concrete structure underlies these earthworks. There are also remnant 1870's (West Battery era) emplacements within the earthworks. Additional information concerning these historic features is provided in the Archaeological Investigation and Monitoring Report (Appendix A).

BBDA 1A is open space that, prior to remediation, was vegetated with native and non-native plants. A segment of the Coastal Trail traverses BBDA 1A from north to south (Figure 2). Site elevations range from 205 feet North American Vertical Datum 88 (NAVD 88), adjacent to the batteries, to 150 feet NAVD 88 on the western edge of the Site, where the bluff slopes steepen.

At BBDA 1A, relict asphalt roofing material remains on portions of the batteries, and prior to the remedial action, the area adjacent to and down slope of the batteries contained asphalt pieces, brick fragments, and tar-permeated sand. The asphalt debris down slope of the batteries was

believed to be derived from the asphalt roofing material that may have been directly placed on the frontal slopes, eroded from the batteries, and/or removed from the batteries and disposed on the bluff top and slopes surrounding the batteries. Soil contamination at BBDA 1A was primarily polycyclic aromatic hydrocarbons (PAHs) derived from the asphalt roofing material.

Remedial action areas were identified in the FS/RAP on the basis of the location of observed asphalt debris and previous soil sample analytical results that showed chemicals of concern (COCs) in soil at concentrations exceeding applicable cleanup levels.

1.3 PROJECT ORGANIZATION

BBDA 1A is located within Area A of the Presidio where the Trust has cleanup authority and the National Park Service (NPS) has administrative jurisdiction. Personnel who were responsible for implementation of the remedial action at BBDA 1A are identified below and on the Project Team Organizational Chart shown on Figure 3.

- California Environmental Protection Agency, California Department of Toxic Substances Control (DTSC) – Robert Boggs, P.E. of DTSC served as the primary point of contact for the lead regulatory agency, DTSC, during remedial activities.
- Trust – Angela Liang Cutting, Ph.D., P.E. of Roux Associates, Inc. (Roux Associates) served as the Project Manager (PM) and Trust representative and provided direction to the Remediation Contractor. Dr. Cutting regularly communicated the status of the project to DTSC, NPS, and other stakeholders.
- Trust – Kenneth Kievit of Roux Associates represented the Trust as the Construction Manager (CM) throughout the construction phase of the project. Mr. Kievit provided direction to the Remediation Contractor and subcontractors, and communicated with the PM, Design Engineer, Construction Quality Assurance (CQA) officer, and other project personnel to assure adherence to planning documents and to facilitate successful implementation of the remedial action plan.
- NPS – Brian Ullensvang of the NPS served as the NPS representative and provided input on key decision throughout the project. Mr. Ullensvang regularly participated in construction status meetings.
- AMEC – Doug Bablitch, P.E. of AMEC represented the Trust as their Design Engineer and addressed issues related to the plans and technical specifications included in the Remedial Design.
- AMEC – Frank Szerdy, Ph.D., P.E. and Justin Hanzel-Durbin of AMEC represented the Trust as persons responsible for CQA and coordinated directly with the Trust, the Design Engineer, and the CM to confirm that remedial construction work was implemented as prescribed in the plans and technical specifications.
- Ford Construction – Ford Construction (Ford) was contracted by the Trust to implement the remedial action at BBDA 1A and served as the Remediation Contractor. Steve Walraven of Ford was the project superintendent and was responsible for implementation of the work and served as the primary point of contact between Ford and the Trust.

2.0 REMEDIAL ACTION SUMMARY

2.1 REMEDIAL ACTION OBJECTIVES

The overall objectives of the remedial action performed at BBDA 1A were as follows:

- Protection of human health and the environment;
- Cleanup of BBDA 1A consistent with its intended land use as a natural area within a national park and an "outdoor museum" of late 19th century U.S. Army harbor fortifications;
- Consistency of the selected remedial alternative for BBDA 1A with the overall restoration and transformation of the Presidio into a national park;
- Recycling or reuse of materials such as concrete and asphalt to the extent practicable;
- Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) and To-Be-Considered advisories; and
- Permanent "clean closure" of the Army-era disturbed area.

The remedial action objectives (RAOs) established in the FS/RAP (AMEC, 2013a) for BBDA 1A are:

- Protection of human health and the environment consistent with the intended future land use;
- Protection of water quality and ecological resources; and
- Preference for permanent ("clean closure") remedies whenever practicable, cost-effective, and consistent with planned land use.

RAOs were achieved through removal of source material (asphalt debris) and soil containing COCs at concentrations that posed risk to human health and the environment. The selected remedy for BBDA 1A has allowed for future Site restoration and trail development, protection and documentation of cultural resources, and was performed in accordance with ARARs identified in the FS/RAP, including the General Management Plan Amendment (NPS, 1994), Vegetation Management Plan (Trust and NPS, 2001), and the Area A Memorandum of Agreement (Trust and NPS, 1999).

In accordance with the FS/RAP, remedial action was considered complete when soil COCs analyzed per the Confirmation Sampling and Analysis Plan (Appendix I of the RDIP; AMEC, 2013b) met cleanup levels and asphalt source material west of the concrete batteries had been removed to the extent practicable and the Site was backfilled and stabilized.

2.2 CHEMICALS OF CONCERN AND SITE-SPECIFIC CLEANUP LEVELS

Site COCs identified in the FS/RAP (AMEC, 2013a) include chemicals that were detected in soil above Site-specific cleanup levels (Table 1) and were considered to pose a potential risk to human health or the environment. Site COCs include the following:

- Metals: copper, lead, silver, and zinc (ecological COCs);
- Pesticide: 4,4'-dichlorodiphenyltrichloroethane (4,4'-DDT) (ecological COC); and
- PAHs (human health COCs): Benzo(a)anthracene, benzo(a)pyrene (BaP), benzo[b]fluoranthene, benzo[k]fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, 2-methylnaphthalene, naphthalene, phenanthrene, pyrene, and indeno[1,2,3-cd]pyrene.

2.3 SUMMARY OF WORK AND CONSTRUCTION PHASING

The following is a chronology of construction activities performed as part of the Site remedial action:

- Pre-construction
  - Pre-construction biological surveys.
  - Pre-excavation soil confirmation sampling to further delineate the remedial excavation area.
  - Installation of crack monitors on existing structures.
- Mobilization and Site Preparation
  - Installation of temporary facilities.
  - Removal of above-grade vegetation in preparation for soil excavation work.
  - Construction of a temporary access bridge and access ramps.
- Remedial Construction
  - Removal of soil containing asphalt material and COCs above BBDA 1A cleanup levels west of the concrete batteries.
  - Archaeological monitoring and documentation of encountered archaeological features and artifacts.
  - Excavation confirmation soil sampling within the remedial excavation area to confirm soil containing COCs at concentrations above cleanup levels was removed.
  - Over-excavation of soil and additional confirmation sampling, as necessary based on initial confirmation soil sample results.
  - Segregation and recycling of debris, including concrete, asphalt, and green waste.
  - Characterization, transport, and disposal of excavated material that could not be recycled to Trust-approved waste management facilities.
- Backfill and Grading and Surface Completion
  - Grading and backfilling of battery frontal slope areas with clean import soil material.
  - Construction of a temporary trail surface and post and cable fence.
  - Installation of erosion control materials.

- Demobilization
  - Remove temporary facilities.
  - Site cleanup.
  - Site acceptance.

3.0 PUBLIC OUTREACH

The Trust contracted and coordinated with the Golden Gate National Parks Conservancy (Conservancy) to develop and implement a signage and public outreach program during remedial construction including developing informational flyers and signs describing the planned remedial construction program. Public Information Coordinators (PICs) patrolled the Site during construction to direct the public to trail detours and provide information concerning the remedial construction project. Copies of the flyers and signs are provided in Appendix B.

4.0 PRE-CONSTRUCTION ACTIVITIES

4.1 STAKEHOLDER COORDINATION

The Trust coordinated with stakeholders before and during remedial construction work to provide them with information concerning the schedule and progress of the project. The following stakeholders were part of ongoing Trust coordination efforts:

- NPS;
- Conservancy;
- Restoration Advisory Board;
- DTSC and California Regional Water Quality Control Board; and
- GGBHTD.

Meetings were scheduled and coordinated with the stakeholder groups prior to and during the project. The Trust PM and CM coordinated project updates and responded to inquiries from stakeholders throughout the duration of the project.

A project kickoff meeting with stakeholders (Trust, NPS, DTSC, AMEC, Ford, Roux Associates, and the Conservancy) was held on May 8, 2013 at the Trust offices in Building 67 at the Presidio. This meeting was followed by a Site walk.

4.2 PLANNING DOCUMENTS, PERMITS, AND CONSTRUCTION SUBMITTALS

4.2.1 Planning Documents and Amendments

Key documents developed to serve as guidance during remedial construction included:

1. Final Feasibility Study and Remedial Action Plan, Baker Beach Disturbed Area 1A (FS/RAP; AMEC, 2013a).
2. Final Remedial Design Implementation Plan, Baker Beach Disturbed Area 1A (RDIP; AMEC, 2013b).

3. Geotechnical Report, Baker Beach Disturbed Area 1A (Appendix A of the RDIP).
4. Baker Beach Soil Remediation Project, Structural Evaluation of Battery Marcus Miller and Magazines (Appendix B of the RDIP).
5. Archaeological Identification and Monitoring Program (AIMP), Remedial Construction, Baker Beach Disturbed Area 1A (Appendix C of the RDIP).
6. Work Plan for Vegetation Management, Baker Beach Disturbed Area 1A (Appendix D of the RDIP).
7. Storm Water Pollution Prevention Plan (SWPPP), Baker Beach Disturbed Area 1A (Appendix E of the RDIP).
8. Health and Safety Plan (HASP), Baker Beach Disturbed Area 1A (Appendix F of the RDIP).
9. Construction Quality Assurance Plan, Baker Beach Disturbed Area 1A (Appendix G of the RDIP).
10. Air and Dust Monitoring and Mitigation Plan, Baker Beach Disturbed Area 1A (Appendix H of the RDIP).
11. Confirmation Sampling and Analysis Plan (CSAP), Baker Beach Disturbed Area 1A (Appendix I of the RDIP).
12. 100% Design Drawings and Technical Specifications, Baker Beach Disturbed Area 1A (Appendix K of the RDIP).
13. Adjustment of Bridge Abutment Location, Baker Beach Disturbed Area 1A (Change Order [CO] 03; June 20, 2013).
14. Revision 1 of the Design Drawings, Revised Excavation Extents, Baker Beach Disturbed Area 1A (CO 04; June 28, 2013).
15. Revised Final Grading Plan, Baker Beach Disturbed Area 1A (CO 08; August 23, 2013).

4.2.2 Permits and Notifications

The following notifications or permit applications were submitted as part of the project.

- General Work – Trust Excavation Clearance Permit No. 6570;
- Temporary Water Service – Trust Excavation Clearance Permit No. 6582;
- USA Permit No. – Ford obtained USA ticket 214997 which required monthly renewal; and
- Fire Code Permit for Hot Work Operations – Permit Number P20136148391, filed with the Trust Fire Protection Office (6/17/2013 through 6/21/2013).

4.2.3 Contractor Submittals

During the project, Ford provided the Trust with submittals specified in the planning documents. The submittal registry is provided in Appendix C.

5.0 HEALTH AND SAFETY

5.1 HEALTH AND SAFETY PLANS, BRIEFINGS, AND MEETINGS

Each contractor working onsite (Ford, Roux Associates, and AMEC) was responsible for preparation of and adherence to a HASP. HASPs were submitted to the Trust PM and a copy of each HASP was maintained in the CM's onsite office.

During Site mobilization, pre-construction safety meetings were held at the Trust office. The meetings were lead by the Trust's safety officer, Howard Rudolf, and attended by Ford, AMEC, Roux Associates, and other subcontractor personnel. Daily safety meetings were conducted by Ford prior to the start of work. Sign-in sheets were filled out every day and signed by attendees. There was only one injury during the remedial construction program. A Ford employee twisted an ankle traversing an uneven slope. The injury was documented in the CM's field daily report.

5.2 DUST CONTROL AND AIR MONITORING

5.2.1 Air Monitoring

Baseline and real-time construction air monitoring was performed by Ford's subcontractor Earthshine Consulting in accordance with Ford's Air Monitoring Plan. Air monitoring included stationary monitoring for particulate matter less than 10 microns in diameter (PM_{10}). PM_{10} perimeter walk readings and collection of dust samples which were analyzed by an offsite analytical laboratory for COCs. Air monitoring records are included in Appendix D.

On June 12, 2013, prior to the start of excavation, Earthshine performed baseline air monitoring to establish pre-construction conditions. Construction air monitoring was performed throughout excavation, grading, and compaction work. The CM supervised air monitoring, reviewed the air monitoring records, and when there were action level exceedances, directed Ford to implement corrective action. Particulate concentrations exceeded the lower action level of 110 micrograms per cubic meter but were below the upper action level of > 1 milligram per cubic meter in only nine out of approximately 267 measurements collected from multiple locations over a 4-month period (June-September; Appendix D). Because the exceedances were below the upper action level and were generally short in duration, no corrective actions were necessary other than the existing dust suppression measures that were implemented. Air monitoring records are provided in Appendix D.

5.2.2 Dust Control Measures

During remedial construction work, fugitive dust was controlled by: (1) maintaining low vehicle speeds onsite, (2) misting or spraying water during excavation, grading, or loading activities, (3) maintaining spoils drop heights during loading, and (4) covering stockpiles. These dust mitigation measures are further described below.

As part of initial Site preparation, Ford established a network of 1- and 2-inch diameter poly vinyl chloride (PVC) water pipes, valves, sprinklers, and fire hoses along the Site. The 1-inch PVC lines were fitted with sprinkler heads at approximate 25-foot intervals and were moved and connected to the 2-inch water line as needed to water down exposed soil and haul roads. In addition, smaller sprinkler lines were installed on the east and west sides of the bridge access ramps. Water for dust control was obtained from a 6-inch hydrant at Bowman Road east of Battery Godfrey.

Fittings and valves were installed at approximate 100-foot intervals along the piping so that 2-inch diameter fire hoses could be connected to the water pipes. The fire hoses, equipped with misting nozzles, were used to control fugitive dust at the following locations: (1) the excavator bucket and dozer work zones, (2) the BBDA 1A soil transfer area, where an excavator loaded the Morooka dump trucks, (3) at the Merchant Road stockpile area, and (4) on the haul road adjacent to the stockpile and on either side of the temporary access bridge. Soil stockpiles were covered at the end of each work day.

During the backfill, grading, and compaction phase of the project, 6-foot high geotextile fabric was placed at the western edge of the batteries between the temporary access bridge and the northern edge of the Site to act as a dust screen.

Nuisance dust complaints during the project from GGBHTD engineering staff occupying temporary offices buildings east of the remedial construction project boundary were addressed in the field.

5.3 EQUIPMENT AND PERSONNEL DECONTAMINATION

Heavy equipment was delivered clean to the Site. Equipment was decontaminated by Ford prior to: (1) exiting the exclusion zone, (2) at the end of the remedial excavation phase of work, and (3) prior to demobilization. Equipment subject to decontamination included heavy equipment used in remedial excavation areas or in soil staging areas. Steel rumble plates were used at exit gates to remove loose soil from the tires of dump trucks leaving the Site.

Personnel were decontaminated before leaving the exclusion zone through removal of loose soil from clothes and footwear and disposal of personal protective equipment, when used.

6.0 STORM WATER POLLUTION PREVENTION PLAN

In accordance with the SWPPP (Appendix E of the RDIP; AMEC, 2013b, Ford Submittal 16), Ford installed and maintained the following best management practices (BMPs):

- Super silt fence at the western edge of the project area - The super silt fence was installed by Oliveira Fencing and comprised 9-gauge chain-link wire mesh, supported on 3-foot high metal posts driven 3 feet into the ground. The fence was lined with

woven geotextile fabric that was buried to a depth of 8 inches at the base of the fence.

- Straw wattles throughout the staging and stockpile areas and between the super silt fence and the perimeter fence.
- Gravel bags along the northern end of the staging area.
- Storm drain inlet protection along Merchant Road.

As deemed necessary, silt fencing was periodically repaired at the request of the CM. Additional sand bags, straw, and wattles were placed within the remediation and staging areas in response to a rain event on September 21, 2013. Ford personnel conducted weekly SWPPP monitoring checks of the remedial construction areas as well as following storm events. Temporary construction BMP locations are presented on Figure 2. SWPPP/BMP inspection forms are provided in Appendix F.

7.0 PROTECTION OF NATURAL AND CULTURAL RESOURCES

7.1 PROTECTION OF NATURAL RESOURCES

Natural resources that were protected during construction included birds and rare and sensitive plants. As part of protective measures taken, plant and bird surveys were conducted in advance of construction. Potential nesting habitat was also removed by cutting vegetation prior to bird nesting season within the Site Vegetation Management Area. The Vegetation Management Area included the excavation, stockpile, and equipment staging areas and a 50-foot buffer zone around these areas (Figure 2).

7.1.1 Plant and Bird Surveys

On February 13, 2013, prior to vegetation removal, H.T. Harvey performed plant and bird surveys within the Vegetation Management Area. No active bird nests or signs of nest-building were observed during the survey.

As part of the plant survey, locations of sensitive plants were located, marked, labeled, and global positioning system (GPS) coordinates of the individual plants collected and recorded. A grouping of sensitive plant species, including *Arabis blepharophylla*, *Clarkia franciscana*, and *Grindelia hirsutula var. maritima,* was observed in the southwest corner of the Vegetation Management Area in a section of intact native coastal scrub and coastal prairie habitat that extended into the remedial excavation area. Within this area, at least one individual of *Erysimum franciscanum* and likely multiple *Arabis blepharophylla* individuals were also observed. The only other sensitive plant species identified within the Vegetation Management Area were two *Cirsium andrewsii* individuals found in a gully near the central portion of the west edge of the Vegetation Management Area. Appendix G provides a memorandum documenting the plant surveys.

On February 12 and 15, 2013, an NPS biologist visited the Site to review the results of H.T. Harvey's plant survey. During the NPS visit, two "high value" native plant areas were identified. One of these areas, designated as Area 1, was located in the southwest corner of the excavation area. The second area, designated as Area 2, was located in the northeast section of the planned excavation area. As discussed in Section 10.4, additional sampling was performed in these two areas to assess whether these areas could be excluded from the remedial excavation. Based on the results of sampling discussed in Section 10.4, portions of these areas were removed from the remedial excavation area and vegetation was not cut in these specific areas (shown on Figure 4).

Additionally, prior to start of construction work, a H.T. Harvey biologist visited the Site to confirm that sensitive plants remained marked and to brief to Site workers regarding the location of and protocols for protection of native and sensitive plants in and around the remediation area.

7.1.2 Vegetation Management

The area for vegetation removal was designated as the Vegetation Management Area and included the excavation, stockpile, and equipment staging areas and a 50-foot buffer zone around these areas. This area was marked by a licensed surveyor prior to Vegetation Removal.

Between February 12, 2013 and June 11, 2013, the Vegetation Management Area was trimmed and mowed by Go Native during three separate events to reduce vegetation height to below 6 inches. Following initial vegetation management work, erosion control materials were placed at potentially unstable areas and areas of exposed soil within the Vegetation Management Area. These erosion controls were inspected following rain events and were determined to be effective at reducing erosion of exposed soil.

7.2 PROTECTION OF CULTURAL RESOURCES

Measures implemented to protect cultural resources within the remediation area were performed in accordance with the AIMP (Appendix C of the RDIP; AMEC, 2013b) and recommendations from a structural engineer (Appendix B of the RDIP; AMEC, 2013b), and geotechnical engineer (Appendix A of the RDIP; AMEC, 2013b) and are discussed below.

7.2.1 Equipment Exclusion Zones

In accordance with geotechnical and structural recommendations presented in the RDIP (AMEC, 2013b), Ford established an equipment exclusion zone around known cultural resources prior to mobilizing heavy equipment to the Site. The exclusion zone extended 10 feet from the western edge of Batteries Marcus Miller and Cranston and a concrete foundation in the northern portion of the Site. The zone was identified by 4-foot high orange-tipped stakes spaced at approximate 20-foot intervals, with closer spacing around the concrete foundation and at bends along the batteries. The equipment exclusion zone was modified throughout the project

to protect additional archaeological features discovered during excavation. In addition, three historic storm drain lines identified in Construction Drawings were marked with stakes to ensure that they were not damaged during construction.

7.2.2 Archaeological Briefing

On June 17, 2013, prior to the start of construction activities, an AMEC archaeologist provided an initial briefing to Ford, their subcontractors, and Roux Associates. This briefing included identification of cultural resources that could be encountered, proper work methodology in the vicinity of cultural resources, and protocols to follow when artifacts were encountered. Additionally, the AMEC archaeologist held briefings throughout the project to keep new workers informed of project requirements.

7.2.3 Archaeological Test Pits

On July 11 and 12, 2013, Ford excavated 10 frontal slope test pits (FSTPs) adjacent to Batteries Marcus Miller and Cranston. An AMEC archaeologist observed and documented the FSTPs. The purpose of these test pits was to assess whether boulders and cobbles observed along the frontal slopes during the pre-remedial investigation were present in other areas of the frontal slopes of Batteries Cranston and Marcus Miller. The FSTPs were 2 x 3 feet and were aligned perpendicular to the edges of the concrete frontal slopes.

Prior to excavation, the archaeological monitor marked each FSTP location, recorded surface conditions, mapped and recorded surface artifacts, and photographed the test pit. During excavation, AMEC archaeologists took notes using standardized forms and maintained a monitoring log that included identification of each level of soil excavated, descriptions of encountered soil, and an inventory of cultural materials, if encountered. The FSTPs were mechanically excavated to within 2 feet of the projected extent of the concrete frontal slope, then hand excavated until the concrete surface and or boulder/cobble surface was encountered. Excavation was completed in 20 to 30 centimeter (0.65 to 0.98 foot) levels that allowed the archaeological monitor to inspect the test pit sidewalls as they were exposed. The FSTP depths extended to 0.5 foot below the planned remedial excavation depth; accordingly, test pit depths varied according to location, with a maximum depth of 4.5 feet.

During excavation of the FSTPs, Features 10 and 12 were uncovered (Appendix A presents figures showing FSTP and archaeological feature locations). Feature 10 is a mortar apron approximately 1.5 foot wide and 1 to 3 inches thick. This apron was encountered in FSTP-600 and during remedial excavation work along both batteries. Feature 12 was encountered in FSTP-607 and comprises a concrete and cobble drain. Subsequent excavations showed that Feature 12 extended approximately 17 feet west from Battery Marcus Miller. Artifacts encountered in the FSTPs included wood fragments (FSTP-600), pipes (FSTP-601, FSTP-604,

and FSTP-608), two nails (FSTP-602 and FSTP-601), and a ceramic coffee cup handle (FSTP-602). The FSTPs were left open after completion.

The primary purpose of the FSTPs was to identify the nature and extent of the cobble feature observed during pre-remedial activities. The cobble feature was not encountered in the FSTPs, but was observed during excavations adjacent to Marcus Miller Gun Emplacement 3. The cobble feature (Feature 27) is dry-stacked along the angled frontal slope of the apron. Elsewhere along Gun Emplacement 3, where the frontal slope was not angled, the cobble feature was not present. A similar pattern of distribution was observed on the frontal slope of Battery Marcus Miller Gun Emplacement 2 (Feature 28).

7.2.4 Archaeological Monitoring and Feature Discoveries

Archaeological monitoring was performed by AMEC archaeologists in accordance with the AIMP (Appendix C of the RDIP; AMEC, 2013b). The AMEC archaeological monitor was present during vegetation removal, installation of silt fences, and excavation. Archaeological monitors took photographs, maintained daily records, and transported collected material to a locked storage area within the staging area on Merchant Road. During remedial construction, 25 archaeological features were identified during remediation activities. Of these, eight features were significant enough to require additional documentation, plans for final treatment and disposition, and revision to excavation and grading plans. Field Memoranda were prepared to document methods for excavation, documentation and final disposition of these features. Appendix A presents the Archaeological Investigation and Monitoring Report (AIMR), archaeological monitoring records, and field memoranda documenting observations and discoveries during remedial construction.

7.2.5 Structural Evaluation and Monitoring

During implementation of the remedial construction program, a structural engineer from Wiss, Janney, Elstner Associates, Inc. (WJE) provided consulting services regarding protection of cultural features present within the project area that included:

- Reviewing and providing comment on Ford's temporary bridge abutment design submittal.
- Visiting the Site to observe and make recommendations concerning protection of Archaeological Features 11 and 14 discovered during excavation. Recommendations were documented in a memorandum dated July 26, 2013 included in Appendix H.
- Visiting the Site to observe and make recommendations concerning excavation and backfilling of drainage Feature 12 discovered during excavation. Recommendations were documented in a memorandum dated August 6, 2013 included in Appendix H.
- Installation, monitoring and photo-documentation of crack monitors before, during, and following remedial construction, reviewing crack monitoring data and assessing whether construction had impacted Batteries Marcus Miller and Cranston. Crack

monitoring is discussed in further detail below. The evaluation of the monitoring data is presented in a memorandum dated October 28, 2013 included in Appendix H.

7.2.5.1 Crack Monitoring

A structural engineer and assistant from WJE installed 24 crack monitors and photo-documented cracks within the concrete portions of Battery Cranston and Battery Marcus Miller, located just east of the remedial excavation area. The photographs were taken and the monitors installed on June 17, 2013, prior to soil remediation activities to document conditions and general extent of cracking prior to the start of remedial construction. Locations of crack monitors are shown in WJE Memorandum dated October 28, 2013, included in Appendix H.

The monitors consisted of a plastic black numbered grid with red crosshairs centered over the crack that was epoxied to the concrete battery. The crack monitors were checked at regular intervals during construction (three times a week until July 29, 2013, and once a week until October 3, 2013); crack monitoring records are provided in Appendix H.

Crack monitoring consisted of viewing and photographing the monitors "straight-on"; e.g., directly perpendicular to the red crosshairs on the monitor. To evaluate if there had been movement, the current monitor photograph was compared to the photograph taken when the monitor was installed. Movement at the crack would register via corresponding movement of the red crosshairs relative to the black numbered grid.

The crack monitors were monitored regularly during construction by AMEC CQA and archaeological monitors. After the access bridge was removed and heavy equipment demobilized from the Site, WJE visited the Site to document post-construction conditions.

Based on the WJE's evaluation of the crack monitoring data, only four of the 24 crack monitors showed discernable movement; the maximum measured movement was approximately 0.3 millimeters (0.012 inches). That degree of movement may be in response to changes in environmental conditions, such as changes in temperature or changes in the moisture content of the soil or rock on which the batteries rest as well as a result of movement from construction work. Based on the lack of significant movement in the crack monitors and the similarity of the "before" and "after" photos, there is no evidence of damage to or movement of the structures as a result of the soil remediation work. A memorandum documenting results of the crack monitoring is presented in Appendix H. At the request of the NPS, the crack monitors have been left in place to be maintained and utilized for future use by NPS and their agents.

8.0 SITE PREPARATION

8.1 FENCING, TEMPORARY FACILITIES, AND SITE SECURITY

The following describes work performed during mobilization to secure the Site and establish support facilities.

8.1.1 Site Security and Security Fencing

Prior to the start of construction activities, security fencing was installed around the Site boundary by Ford's subcontractor, Oliveira Fence. In level areas along the bluff top, the fencing comprised 6-foot high chain-link fence. Panelized chain-link fence was used in steeper areas or where a shorter section of fence was required to limit Site access. The chain-link fence was primarily installed using driven metal posts. Fencing along the Covered Way, east of Batteries Godfrey and Boutelle, was anchored using metal T-posts driven into the adjacent slope to avoid damaging a historic drainage channel. Construction gates were located at entry/exit locations at the east and west side of the Merchant Road parking lot. These gates were locked at the end of each work day. Signs labeled "Area Closed" were installed on the fence and gates. As part of the public outreach program, detour signs, informational signs and directional arrows were affixed to the security fencing to indicate the location of temporary trail detours. Security personnel were stationed at the Site on evenings and weekends, when construction work was not ongoing. Security personnel patrolled the Site perimeter regularly during these time periods.

8.1.2 Temporary Facilities

Temporary storage, office, and hygiene facilities installed at the Site consisted of:

- A construction office trailer (approximately 10- by 20-foot) at the north end of the Merchant Road parking lot. The trailer provided office space for Ford and was used for weekly project meetings.
- A construction office trailer (approximately 10- by 10-foot) at the northwest end of the Merchant Road parking lot. The trailer provided office space for the CM.
- A 10- x 10-foot conex box (shipping container) at the north end of the Merchant Road parking lot. The box provided AMEC with secure storage space for archaeological supplies and equipment, soil sampling equipment, the nuclear compaction testing gauge, and supplies used for compaction testing.
- One 20-foot conex box at the northeast end of the Merchant Road parking lot that served as Ford's storage for small tools and supplies.
- Temporary sanitary facilities, that included two portable toilets with wash sinks at the northwest end of the Merchant Road parking lot.

8.1.3 Excavation and Staging Areas and Establishment of Exclusion, Contamination Reduction and Support Zones

Prior to excavation work, Ford established excavation and staging areas and exclusion, contamination reduction, and support zones in accordance with their Excavation, Stockpile Management, and Grading Plan. The excavation area was identified as the area west of the temporary access bridge and the staging area included the area east of the temporary access bridge including the Merchant Road parking lot and adjacent unpaved area.

The exclusion zone included the project area west of the temporary access bridge, the bridge, the haul route from the bridge to the stockpile area, the stockpile area, and the excavation area. Ford established the exclusion zone using chain-link and orange construction fencing. Contamination reduction zones, comprising boot and equipment wash stations, were located adjacent to the east end of the bridge at the edge of the paved parking lot and at the gates to the Site. Steel rumble pads were installed at gates to the Site, to remove loose soil from vehicles tires before exiting the Site. The support zone was established as the area east of the bridge within the Merchant Road parking lot and included equipment storage, temporary offices, and sanitary facilities.

8.2 TRAIL CLOSURES AND TRAFFIC CONTROL

8.2.1 Trail Closure

Prior to the start of construction, informational and detour signs were affixed to the security fencing and portable barricades. The Coastal Trail that traversed the Site was closed from June 16 through October 24, 2013. The Coastal Trail detour is shown on Figure 2. Conservancy PICs were stationed at trail detour locations and walked the Site perimeter during work days to assist in educating the public and to direct pedestrian traffic around the Site.

8.2.2 Traffic Control

Access to the parking lot west of Merchant Road was closed during remedial construction; alternative parking was available at the parking lot at the intersection of Lincoln Boulevard and Storey Avenue. During days when offsite hauling and supply delivery occurred, Ford provided flagmen to control and minimize disruption to traffic flow. In addition, on days when import fill was hauled from the Dust Bowl soil staging area at the Presidio, flagmen coordinated truck access to roadways from the Dust Bowl.

8.3 CLEARING, GRUBBING, AND TREE REMOVAL

Clearing and grubbing consisted of removal and disposal of tree stumps, roots, tree branches, brush, shrubs, weeds, scrap wood and metal, debris and general trash, rocks, asphalt debris, concrete rubble, pipes, concrete blocks, and abandoned utilities from the remedial excavation area.

Prior to establishment of the temporary bridge abutments, Ford identified a cypress tree that encroached within the planned temporary bridge alignment. Ford contracted a Certified Arborist (Brian Fenske, from The Professional Tree Care Co. [PTC]) to visit the Site and inspect the tree. On June 27, 2013, PTC mobilized to the Site and determined that the cypress tree could not be trimmed and had to be completely removed. The Trust and NPS were notified and the tree was removed to provide adequate clearance for the temporary access bridge.

8.4 TEMPORARY BRIDGE CONSTRUCTION ACTIVITIES

A temporary bridge was constructed to access the excavation area on the west side of Batteries Cranston and Marcus Miller as there were no access roads to the remedial excavation area. The bridge and abutments were specifically designed to avoid impacts to the batteries and earthworks. The bridge was designed and manufactured by Mabey Bridge and Shore, Inc. (Mabey) in accordance with requirements identified in the RDIP and Remedial Design Drawings and Technical Provisions (AMEC, 2013bc). The bridge was a pre-manufactured, modular panel, 150-foot long, single-lane roadway. The bridge super-structure was comprised of interchangeable galvanized steel truss panels pinned together to form the truss spanning the gap, with steel beams spanning between the trusses to support the deck system. The bridge placement required construction of temporary approach ramps and east and west bridge abutments. Deployment and construction of the temporary access bridge and approach ramps are further described below.

8.4.1 Abutment Construction

Prior to abutment construction, the locations of the east and west bridge abutments were marked in the field by Ford's surveyor. Review of the marked location of the west abutment indicated that it was closer to concrete stairs at Battery Marcus Miller than intended in the Construction Drawings. Specifically, the top landing of the concrete stairs extended approximately 2 feet further west (nominal direction) than was previously understood based on available survey information. After consultation with the NPS and the WJE structural engineer, the west abutment was shifted 1 foot west-northwest along the longitudinal axis of the bridge to increase the distance between the abutment and the closest corner of the stairs to 4 feet and decrease the distance between the abutment and Magazine 19 feature to 9.2 feet.

The eastern bridge abutment was constructed first. The abutment area was marked with 5 foot offsets and the platform built by cutting soil on the south end and filling on the north end of the abutment. AMEC tested compaction of the platform once built. The abutment was constructed on the platform using steel brackets, bolts, and 12- x 12-foot structural timbers. After the abutment was installed, a minimum of 8 inches of soil was placed and compacted around the base of the timbers.

To construct the west abutment, Ford mobilized a skid steer, backhoe, and truck with trailer using pedestrian trails beneath the Golden Gate Bridge and the Coastal Trail to access the west bridge abutment location. Methodology and materials for the west abutment construction were the same as were used for the east abutment except that additional fill material was required to build the west abutment platform. This fill was obtained from an area in the northern portion of the Site that was not planned for excavation, but was planned to be cut to meet final grades.

8.4.2 Bridge Deployment

On June 28,' 2013, Ford began assembly of the bridge sections in the staging area adjacent to the east abutment. On July 1, 2013, Ford finished assembly of the bridge and extended it to the west abutment. On July 2, 2013, Ford completed deployment of the bridge and secured the bridge by installing anchor plates at both abutments. This work was performed under the supervision of M. Stokstad, a representative of the bridge manufacturer (Mabey). Bridge deployment on July 2 was also observed by the WJE structural engineer.

8.4.3 Approach Ramp Construction

After the bridge was secured to the abutments, Ford constructed approach ramps on the east and west sides of the bridge in the sequence described below:

- July 3, 2013 – Began hauling Decker Island (DI) backfill material from the Dust Bowl to the Site staging area.

East Ramp

- July 5, 2013 – Built the access bridge back wall and poured a wedge of slurry at the east end of the bridge and began placing DI material.
- July 6, 2013 – Finished placing DI material.
- July 10, 2013 – Spread and compacted crushed stone across the east abutment ramp.

West Ramp

- July 2, 2013 – Excavated soil at Cell A4 (which was west ramp location); confirmation soil sample collected (see Section 10 for confirmation sampling details).
- July 8, 2013 – Built bridge back wall and poured a wedge of slurry at west end of the bridge and began placing DI material.
- July 9, 2013 – Finished placing DI material to complete the remainder of the west ramp.

8.5 PRE-CONSTRUCTION TOPOGRAPHIC SURVEY

On June 26 and 30, 2013, prior to the start of excavation, Ford's Surveyor, F_3 and Associates, Inc. (F_3), conducted a topographic survey to represent "existing conditions" at the Site excavation area. The topographic survey map of existing conditions, dated September 19, 2013, is provided in Appendix I.

9.0 REMEDIAL EXCAVATION

9.1 LAYOUT OF WORK AREAS

The layout of remedial construction work areas is shown on Figure 2. Equipment and soil staging areas, and support areas were located on the east side of the temporary access bridge adjacent to Merchant Road and the excavation area west of the batteries.

9.2 EXCAVATION METHODS

Excavation work began on July 12 and was completed on August 9, 2013. Methods used for excavation and transfer of soil and waste material from the Site are described in the following sections.

9.2.1 General Excavation Methods

Remedial excavation was performed utilizing conventional excavation equipment (Cat 321 excavator, Cat D5 dozer, and Morooka track-mounted dump trucks). Grade control was accomplished using a GPS rover system (Trimble).

A haul road was constructed on top of contaminated material approximately 15 feet west of the batteries. This road was deconstructed as excavation moved toward the temporary access bridge to reduce the potential for tracking contaminated soil over areas that had been excavated.

Excavation began at the northern end of the Site and moved south. Excavation work was temporarily suspended in areas where archaeological features were encountered until methods for excavation, documentation, and protection of the features were developed, reviewed, and approved by the NPS archaeologist. Soil was excavated to planned depths using a GPS unit to identify planned excavation grade except where asphalt material was encountered. In those areas, soil was excavated to depths such that all visible asphalt material was removed.

In general, an excavator was used to move soil and debris materials upslope (from west to east). At the western edge of the excavation, excavators kept their tracks a minimum of 10 feet from the edge of the bluff. Excavated material was either directly loaded into the Morooka dump trucks, or moved by a dozer to a temporary staging location where it was loaded and transferred across the temporary access bridge to the soil stockpile location in the soil staging area. The exposed soil in the excavation area was watered regularly to reduce fugitive dust generation.

9.2.2 Excavation Near Cultural Resources

Prior to the start of construction, specific cultural resources were identified that required protection during remedial earthwork. These features included the exposed concrete portion of Batteries Cranston and Marcus Miller, a concrete foundation in the northern portion of the Site, historic storm drains, and remnants of subsurface Magazine 19 near the west bridge abutment (Figure 2). During the course of the project, additional archaeological features were discovered that required protection. Excavation methods in the vicinity of cultural resources are described below.

Storm Drains. The approximate locations of the historic storm drains were surveyed and marked based on available historic Site plans prior to the start of excavation. Following clearing and grubbing, only two of the three storm drain outfalls could be located, the third outfall was

assumed to be buried. The outfalls that were found were marked using wooden stakes with flagging and orange construction fencing. The locations of the storm drains are shown on the Construction Drawings (Appendix M); the location of the storm drain that was not discovered in the field is identified on the As-built drawings (Appendix N).

Concrete Batteries. The remedial excavation area included soil adjacent to and on top of the concrete portions of Batteries Marcus Miller and Cranston. Soil within 2 feet of the edge of the concrete battery was removed using hand tools. The remainder of the 10-foot equipment exclusion zone was excavated under the direction of a spotter with the excavator sitting outside the zone and the excavator arm reaching into the zone.

Historic Concrete Foundation. Much of the concrete foundation in the northern part of the Site was outside the remedial excavation area. Where excavation was required within the foundation's 10-foot equipment exclusion zone, the excavator was positioned outside the zone and soil was removed by reaching in with the excavator arm under the direction of a spotter.

Magazine 19. Where the exclusion zone surrounding the subsurface Magazine 19 remnant was within the excavation area, the excavator sat outside the exclusion zone and reached in to remove soil with the assistance of a spotter.

Unanticipated Discoveries. During excavation, 25 previously unidentified archaeological features were discovered that are listed in Table 2 and described in detail in Appendix A. Once a feature was encountered, excavation in the area ceased and the feature was further investigated under the direction of the AMEC archaeologist using hand tools and as appropriate, a backhoe. Exclusion zones surrounding these features were marked by wooden stakes with flagging and/or orange construction fencing. Memoranda were prepared describing methods for excavation and final treatment of Features F-11, F-14, F-12, F-12b, and F-15 are presented in Appendix A. AMEC archaeologist's recommendation for treatment of Feature F-25 was communicated in e-mails from AMEC to the Trust and NPS on September 5, 2013. Excavation did not continue below feature 12 and 15 in order to preserve the features in place. All other features were excavated to the extent needed to identify them or to remove contaminated fill. In the case of Features 12 and 15, it is highly unlikely that contamination exists below these features, which generally predate the placement of asphalt roofing material. Additionally, excavating below those features was likely to result in damage to those features. Asphalt and tar material was observed on the surface of the cobble and mortar of drainage feature F-12.

9.2.3 Over–Excavation

Soil was excavated if asphalt debris was observed beyond the planned excavation limits (laterally or vertically) or excavation confirmation soil samples contained COCs at concentrations exceeding cleanup levels. Following clearing and grubbing, asphalt debris was

observed beyond the planned excavation boundary in Cell D3 (Figure 4). During excavation, Ford field personnel and the AMEC CQA officer identified areas where visible asphalt material was present at and below planned excavation grade. At these locations, the CM directed over-excavation of soil containing visible debris in consultation with the Design Engineer.

Soil from excavation cells where soil confirmation samples contained COCs at concentrations exceeding cleanup levels was further excavated within the cell to depths of 0.5 to 1 foot below excavation grade or 0.5 foot below observed asphalt material. The depth of over-excavation was based on the magnitude of the exceedance and/or the presence of observed asphalt material. Recommendations for over-excavation were presented in e-mails to DTSC and the NPS dated July 30 and 31, and August 2 and 9, 2013. Following over-excavation, the surface of the excavated cell was visually inspected for asphalt material and additional confirmation samples were collected from the over-excavated area as described in Section 10.4.

9.3 SOIL STOCKPILE MANAGEMENT

Stockpile areas were located on the gravel portion of the Merchant Road parking lot. The stockpile area was lined with 20 mil polyethylene sheeting which was covered with a 6-inch bed of sand.[1] K-rails, placed end to end and covered with 8 ounce non-woven filter fabric, were installed as containment around the perimeter of the stockpile area. The stockpiled soil was covered with 12 mil polyethylene sheeting and straw bales were placed around the stockpile to reduce the potential for fugitive dust generation and runoff. Gravel and sand bags were used to anchor the polyethylene stockpile covers.

9.4 POST-REMEDIAL EXCAVATION SURVEY AND GRADING PLAN REVISIONS

Following the conclusion of the excavation activities, Ford's surveying subcontractor F_3 conducted a topographic survey to verify that planned remedial grades had been met. The topographic survey of the remedial excavation was performed on July 30, August 9, and September 25, 2013. Based on review of these surveys, remediation design excavation grades were achieved in all areas except in limited cases where archaeological features or bedrock were encountered. The Post-Remedial excavation survey is provided in Appendix I.

Following the review of the preliminary remedial excavation survey and observation of general Site conditions the 100% final grading plans (Appendix M) were modified as described below:

- Changes to the location of the temporary trail platform to avoid archaeological features within the planned trail location.
- Final grades at newly discovered archaeological feature locations were modified to protect the features and maintain drainage.

[1] Placement of sand on top of the liner differed from the remedial design specifications which indicated that the sand bedding was to be placed below the liner. The bedding was placed on top of the liner to protect it from ripping during soil loading.

- Changes to excavation limits from over-excavation are summarized below:
- The conform line (i.e. delineation of the extent of fill placement) shifted east in several locations that required revising the design of post-excavation grades to maintain slope stability and avoid placement of fill material on steep slopes.
- At the edge of the excavation area, final excavation grades were lower than design. This change required that additional soil be removed at the bluff edge to maintain sheet flow.

9.5 TOTAL VOLUME OF SOIL EXCAVATED

The estimated mass of soil excavated was calculated by summing the waste disposal weight tickets for soil hauled off-site. The total quantity of soil removed as part of the remedial excavation is approximately 7,992 tons or approximately 5,328 cubic yards (cy) based on an assumed in place density of 1.5 tons/cy. An additional 318 tons of material excavated from the eastern ramp and limited quantities of asphalt, brick, and concrete, and tree stumps were also disposed offsite, as well as two roll-off bins of green waste that were recycled at the Recology facility.

10.0 SOIL CONFIRMATION SAMPLING

10.1 SAMPLING METHODS, ANALYTICAL PROGRAM, DATA VALIDATION, AND DATABASE REPORTING

Soil confirmation sampling was performed in accordance with the CSAP (Appendix I of the RDIP; AMEC, 2013b). A summary of the sampling methods, analytical program, and database reporting are described below.

Sampling Methods

Confirmation soil samples were collected and analyzed in accordance with the Presidio Quality Assurance Project Plan (QAPP; Tetra Tech, 2001) and CSAP (AMEC, 2013b). Confirmation soil samples were collected from the ground surface to 0.5 feet depth by pushing a stainless steel sample tube directly into the soil. On August 7, 2013 samples were collected prior to excavation by hand-digging to the designated depths and pushing the soil tube into the soil. Following collection, the sample tubes were capped with Teflon-lined lids, labeled using designated sample identifications (IDs) in accordance with the QAPP, placed in Ziplock® bags (or equivalent), stored in a cooler with ice, and submitted to the analytical laboratory under chain-of-custody control. Chain of custody forms are provided in Appendix K. Sample handling was performed in accordance with the QAPP.

In order to assess data quality, field duplicates were collected at a frequency of approximately 10 percent of the total number of samples generated.

Sample locations were marked in the field with stakes and pin flags containing the sample ID and the locations were surveyed using a GPS. The GPS information was downloaded and a figure was prepared showing the location of each sample.

Analytical Program

Soil confirmation samples were analyzed by Curtis & Tompkins, Laboratory (C&T) in accordance with the QAPP as follows:

- All Confirmation Samples: PAHs (which includes the COCs benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[b+k]fluoranthene, benzo[k]fluoranthene, chrysene and indeno[1,2,3-cd]pyrene) by United States Environmental Protection Agency (EPA) Test Method 8270SIM.
- Confirmation Samples in Southern Portion of Site (Figure 4): Copper, lead, silver, and zinc by EPA Test Method 6020 and 4,4'-DDT by EPA Test Method 8081A.

Appendix K provides laboratory analytical reports.

Data Validation

Level II cursory data review was performed on excavation confirmation sample data in accordance with guidelines in the QAPP and the addendum to the QAPP, dated June, 2011 (Trust, 2011); and the principles presented in the EPA National Functional Guidelines for Inorganic Superfund Data Review (EPA, 2010), and the principles presented in the EPA National Functional Guidelines for Superfund Organic Methods Data Review (EPA, 2008). Level II cursory data review included review of chain-of-custody, sample preservation, holding times, surrogate recoveries, blanks, laboratory control and laboratory control sample duplicates, matrix spike and matrix spike duplicate samples, serial dilution, field duplicate samples and laboratory reporting limits, as applicable.

Results of the data validation effort indicate that the excavation confirmation soil sample results are considered useable as qualified, with completeness of 100 percent. Appendix K presents the Data Review Summary Report. Based upon the data review summarized in Appendix K, the results of excavation confirmation soil sampling are considered valid and usable as qualified to support project decisions.

Database Reports

Confirmation soil analytical data was provided by C&T in the form of Presidio-formatted electronic disc deliverables (EDDs) and electronic versions of Level II and Level III analytical data packages. The EDDs were loaded into AMEC's structured query language data base and the laboratory data packages were reviewed, validation qualifiers applied, and the qualifiers were loaded into the database. Database reports were generated that compared analytical results to cleanup levels based on soil type and sample location relative to planned vegetation

management areas. Three cleanup level groups were used to evaluate the data that are listed below:

1. **Colma Soil and Ecological Special-status Species Cleanup Levels -** applicable to future native plant restoration areas where Colma formation is the underlying soil type.
2. **Serpentinite Soil and Ecological Special-status Species Cleanup Levels -** applicable to future native plant restoration areas where serpentinite is the underlying soil type.
3. **Ecological Buffer Zone Cleanup Levels -** applicable to landscaped areas. Because ecological buffer zone cleanup levels exceed metals background for Colma and serpentinite, lithology did not need to be considered when evaluating confirmation sampling results in this area of the Site.

At the end of the project, the Presidio-formatted EDDs were appended with data validation qualifiers and northing and easting coordinates corresponding to the sample locations and uploaded to the Trust Sharepoint site.

10.2 PRE-EXCAVATION SOIL CONFIRMATION SAMPLING

Pre-excavation confirmation soil sampling was performed prior to excavation and consisted of the following activities:

- Soil sampling and potholing in two native plant areas to assess whether soil in those areas contained asphalt and/or COCs at concentrations exceeding cleanup levels.
- Potholing in an area where soil was planned to be cut and graded to confirm the absence of asphalt in that area.
- Collection and analysis of perimeter and step-out confirmation soil samples to establish the lateral limits of the remedial excavation area.

Results of pre-excavation confirmation soil sampling and exploratory sampling are discussed in a memorandum presented as Appendix J and are summarized below. Figure 4 shows locations of pre-excavation samples and identified native plant areas.

Native Plant Areas. On February 22, 2013, soil samples were collected from five locations in Area 1 and three locations in Area 2. Surface and subsurface soil samples were collected, but only surface soil samples were analyzed for PAHs; the deeper soil samples were put on hold. Two potholes, designated PH09 and PH10, were excavated and logged in Area 1 on March 21, 2013. Results of sampling, logging, and chemical analysis are summarized below.

- Area 1: Based on PAH concentrations below cleanup levels in two soil samples BB1AEX203[0.0] and BB1AEX204[0.0] and the absence of asphalt in the two potholes PH09 and PH10, the portion of Area 1 on the bluff slope around those locations was excluded from the excavation area. Because asphalt was observed at locations BB1AEX200 and BB1AEX202 and PAHs were above cleanup levels in BB1AEX202[0.0], those sample locations were included within the excavation area.

- Area 2: Based on PAH concentrations in soil below cleanup levels, BB1AEX206[0.0] was used to define the northern limit of the excavation area. Because PAH concentrations in sample BB1AEX205[0.0] exceeded cleanup levels, that sample location was included in the excavation area.

Perimeter and Step-out Confirmation Soil Samples. On March 20, 2013, in accordance with the CSAP, 18 soil samples (16 primary and two duplicates) were collected along the planned excavation perimeter to provide additional data so that there would be one sample for every 50 feet of the planned excavation boundary. All samples were analyzed for PAHs. Two soil samples BB1AEX208[0.0] and BB1AEX209[0.0] were also analyzed for metal COCs (copper, lead, silver, and zinc) and 4,4'-DDT, and BB1AEX210[0.0] was also analyzed for 4,4'-DDT.

On April 2, 2013, six step-out soil samples (BB1AEX224 through BB1AEX229) were collected approximately 10 feet from the March 2013 sample locations where COCs were detected at concentrations exceeding cleanup levels. Five samples were analyzed for PAHs and sample BB1AEX224[0.0] was also analyzed for 4,4'-DDT; sample BB1AEX225[0.0] was placed on hold. Review of the analytical results for these samples showed that the detected concentration of BaP in BB1AEX227[0.0] exceeded the cleanup level. On April 15, 2013, three additional step-out soil samples (two primary and one duplicate) were collected approximately 10 feet from BB1AEX227. All three samples were analyzed for PAHs.

Because perimeter pre-excavation confirmation soil samples BB1AEX210[0.0], BB1AEX212[0.0], BB1AEX217[0.0], BB1AEX219[0.0], and BB1AEX223[0.0] contained COCs at concentrations exceeding cleanup levels, the proposed excavation area was modified to include these locations, and step-out samples BB1AEX224[0.0], BB1AEX226[0.0], BB1AEX228[0.0], BB1AEX229[0.0], BB1AEX230[0.0], and BB1AEX231[0.0] were used to define the excavation boundary.

Exploratory Potholes. On March 21, 2013, AMEC dug eight potholes (PH01 through PH08; Figure 4) in the northern portion of BBDA 1A, where soil was planned to be cut and graded as part of post-excavation restoration. The purpose of logging the potholes was to confirm the absence of asphalt debris in shallow soil in the area. Pothole depths were based on the expected depth of cut at each location and ranged from 0.5 feet below ground surface (bgs) to 3.0 feet bgs. No asphalt debris was observed in the potholes. Based on the absence of observed asphalt debris, no excavation and soil removal was performed in this area.

10.3 EXCAVATION SOIL CONFIRMATION SAMPLING

This section discusses excavation confirmation sampling performed to confirm that residual concentrations of COCs in soil following excavation are not at levels that pose risk to human health and the environment.

10.3.1 Grid Layout

Ford's surveying subcontractor, F_3, established and maintained a field grid survey and control system at the Site; grid nodes were marked in the field with grade stakes. The survey and control system was based on the 50-foot grid shown on Figure 4 and was used to guide collection of confirmation soil samples at the Site.

10.3.2 Confirmation Sampling Events and Locations

After Ford completed excavation to design depths in several grids, confirmation samples were collected from depths of 0 to 0.5 foot below the excavation floor within each excavated grid cell. Confirmation sampling was performed on July 2, 17, 19, 23, 25, 26, 29, 30, and August 2 and 7, 2013. In general, confirmation samples were collected near the center of the grid cells and along the perimeter of the excavation area. Based on confirmation sampling results, over-excavation was performed in 13 grid cells and the grids re-sampled. On August 7, 2013, at the end of the sampling program, 12 pre-excavation samples were collected from three grid cells as detailed below to eliminate the need for additional sampling events.

- Cell B4:
  - Samples from depths of 0.5 and 1.0 foot below existing ground; the 1.0 foot sample was placed on hold.
- Cell A6:
  - Samples at previous sample location BB1AEX284 (where PAH concentrations exceeded cleanup levels) at a depth of 1.0 and 2.0 feet below existing ground surface; the 2.0 foot sample was placed on hold.
  - Samples were collected 12 feet west of BB1AEX284 at the existing excavation surface and at depths of 1.0 and 2.0 feet below existing ground; the 1.0 and 2.0 foot samples were placed on hold.
- Cell A7
  - Samples were collected at BB1AEX285 (where PAH concentrations exceeded cleanup levels) at depths of 1.0 and 2.0 feet below existing ground surface; the 2.0 foot sample was placed on hold.
  - Samples were collected 10 feet west of BB1AEX285 at the existing ground surface and at 1.0 and 2.0 feet below existing ground surface; the 1.0 and 2.0 foot samples were placed on hold.

Figure 4 shows confirmation sample locations and Table 3 is a sample tracking matrix.

10.3.3 Confirmation Sample Results

Table 3 lists excavation confirmation soil samples and Tables 4, 5, and 6 present analytical results for excavation confirmation soil samples collected during the July through August 3013 remedial excavation program. Results for samples that were over-excavated are shown in red font and are struck out on Tables 4, 5, and 6.

As shown on these tables, COC concentrations in all but four excavation confirmation soil samples are below Site cleanup levels. Concentrations of BaP in two perimeter samples (BB1AEX226[0.0] at 0.26 milligrams per kilogram [mg/kg] and BB1AEX229[0.0] at 0.27 mg/kg [Table 4]) and two bottom samples (DUP072913 at 0.33 mg/kg and BB1AEX267[1.0] at 0.31 mg/kg [Table 5]) slightly exceed the 0.25 mg/kg cleanup level. It is noted that the BaP concentration in the primary sample that corresponded to DUP072913 was 0.13 mg/kg, which is below the 0.25 mg/kg cleanup level. To confirm that BaP concentrations in these four samples do not significantly elevate risks, a 95% upper confidence limit (UCL) on the mean for BaP was calculated using ProUCL software; the ProUCL output is attached in Appendix K (Table K-3). Data used to calculate the UCL included pre-excavation perimeter (Table 3) and excavation bottom confirmation sample results that represented soil that was not over-excavated. Data used in the UCL calculation are presented in Appendix K (Table K-3). For primary and duplicate samples, the average concentration of the primary and duplicate samples was used to calculate the UCL. The calculated UCL for BaP was 0.077 mg/kg (Table K-3), which is well below the Site-specific cleanup level.

10.4 E-MAIL UPDATES AND DTSC CONCURRENCE

Confirmation sampling results and recommendations were communicated in electronic mail (e-mail) updates from the PM to DTSC and NPS on July 30 and 31, and August 2, 9, 13, and 21, 2013. DTSC provided concurrence with recommendations in e-mails dated August 5, 12, and 21, 2013.

11.0 WASTE MANAGEMENT AND DISPOSAL

This section describes activities performed in support of excavation and grading work at BBDA 1A. Appendix L presents data for waste management and disposal activities performed during the project.

11.1 SOIL PROFILING AND DISPOSAL

Soil samples were collected in-situ prior to the start of excavation by Ford and additional samples were collected as needed from the soil stockpiles within the staging area based on requirements of the landfill. Analytical results for soil profiling are provided in Appendix L.

Using a Cat 950 loader, soil and other waste materials were loaded from the stockpile area into end dumps for transport via the state highway system to disposal facilities. Green waste was placed in a roll-off container in the staging area. Before leaving the Site, haul trucks were covered with tarps.

Based on information submitted by Ford, the following quantities of waste and soil were recycled or disposed offsite from BBDA 1A:

- 8,310 tons of Class II Waste was disposed at Recology, Hay Rd, Vacaville, California.
- One truckload of recycling was disposed at Recology, Hay Rd, Vacaville, California.
- Two truckloads of green waste were disposed at Jepson Prairie Organics, Recology Hay Rd, Vacaville, California.

12.0 BACKFILLING AND GRADING

Methods used for transfer, placement, grading, compaction, and testing of soil used for excavation backfill are described below.

12.1 IMPORT FILL

Soil used for backfilling was obtained from a facility located at DI in the California Delta, operated by D.I. Aggregate Management, LLC. Material mined at DI comprises two soil types – sand and clay that is mixed to desired ratios in a pug mill at the facility.

Based on evaluation of available geotechnical, chemical, and horticultural tests of DI soil, it was considered to be a suitable source of backfill material for BBDA 1A. The Trust sent a letter to DTSC dated March 26, 2013 (Trust, 2013) that presented available data and recommendations concerning product mixtures and soil amendments, and requested DTSC concurrence on the use of DI soil as import fill, which was received from DTSC on April 22, 2013.

Based on horticultural and soil compaction requirements, AMEC and H.T. Harvey developed performance targets for the DI soil. The recommended soil mixture for BBDA 1A backfill material was 70 percent sand with top soil removed (to limit potential for invasive plant seeds to be imported to the Presidio) and 30 percent clay that were mined from a specific area and soil horizon at DI. This product was mixed in a pug mill at the DI facility and barged to Mare Island where it was loaded on trucks and transported to the soil staging area located offsite but within the Presidio (known as the “Dust Bowl”) between August 12 and September 14, 2013.

Import fill from the Dust Bowl was loaded into 10-wheel dump trucks and transported to BBDA 1A, where the soil was unloaded off the west end of the temporary bridge. An excavator then loaded the material into a Morooka truck for transport to backfill areas or a dozer was used to push the material to locations where backfill material was needed.

Testing of initial lifts of import fill indicated that the moisture content was too high for proper compaction. Ford, in consultation with the CM and Design Engineer, implemented methods to dry the material, including spreading and disking the material, prior to placement as backfill.

12.2 REVISION TO GRADING PLANS

During construction, minor modifications to the final grading plan were required based on changed conditions in the field such as:

- Discovery and protection of previously unidentified archaeological features.
- Changes in final grades in areas where over excavation affected the location of the conform line.

Revisions to the final grading plan were completed as needed to maintain the design goals to the extent practicable including maximum slope requirements, trail platform extents, drainage, and general conformance with historical grades. Modifications to the issued grading plans are included in Appendix M, and include:

- Revision 1 of the Construction Drawings issued on June 28, 2013. The full set of Revision 1 drawings are provided in Appendix M1.
- Field Issued Revisions – copies of field issued drawings, markups and sketches are included in Appendix M2.
    - Memo with Drawing C-107; dated 8/23/13.
    - Provisions for a temporary trail surface and post and cable fence; dated 8/30/13.
    - Field issued mark-up sketches showing changes to the trail platform alignment to avoid cultural resources along the planned alignment; dated 9/5/13.

12.3 POST EXCAVATION TREATMENT OF CULTURAL FEATURES

Newly discovered archaeological features were exposed by hand digging, or if appropriate, use of a backhoe to planned excavation depth, documented, surveyed, covered under the direction of the archaeological monitor, and marked with flagging for protection. The AIMR included in Appendix A provides additional detail concerning post-excavation treatment of archaeological features within the excavation boundaries. A summary of specific cultural features is discussed below.

Field Memoranda dated July 22, 2013 and August 12, 2013 were prepared to provide the recommended approach for backfilling the area around Features 11 and 14 and a wood sub-feature and parapet wall within Feature 11. As part of post-excavation treatment of Feature 11 (a pintle and interior brick wall of an 1870's West Battery era parapet), the feature was covered with geofabric to mark its location and to protect the feature from future ground disturbance activities. Based on recommendations in the August 12, 2013 memorandum, soil was hand placed around the wood sub-feature and parapet wall before placement of the geotextile fabric to reduce the potential for damage from compression and voids caused by the fabric. Additionally, fill was cut back to a 1:1 slope to direct the force of overlying soil to the west. Fill was compacted, where feasible, using hand-operated, power-assisted tools. An archaeological monitor was present to observe the work to verify that equipment did not inadvertently damage the wall and wood sub-feature.

Where features lay near to finish grade (e.g., mortar and stone drainage features; Features 12 and 15), the grading plan was modified to provide adequate cover over the feature. Feature 12 consists of two segments - Segment A is 32 feet long and Segment B consists of two discontinuous sections measuring 10 and 5 feet. Asphaltic and tar material had adhered to the mortar and stone of Feature 12 and could not be removed without damage to the feature.

Feature 15 comprises a 10 foot section of drainage channel similar in construction to Feature 12. An approximate 7 foot section located at the western end of this feature was inadvertently damaged when uncovered during remedial excavation. The damaged portion appears to have broken into several large fragments.

As part of final grading, Feature 12 was covered with geotextile fabric and covered with soil. Grades immediately adjacent to Segment B were raised by approximately 1 foot from design grade to provide a protective soil layer over the feature. The raised grades were tapered approximately 10 feet to each side to match original design grades.

Based on recommendations from the NPS, the intact portion of Feature 15 was left in place. The damaged portion of the feature was removed, soil below the projected alignment excavated to 1.5 feet below existing ground surface, the feature reassembled under the direction of an archaeologist, and then covered with geotextile fabric and soil.

12.4 POST-EXCAVATION BACKFILL AND GRADING METHODS

Post-excavation backfill and grading work was performed using conventional construction equipment (Cat 321 excavator, Cat D5 dozer, Cat 450E backhoe, Cat 299L skid steer, and Morooka track-mounted dump trucks). Before backfilling proceeded, equipment exclusion zones were re-established around cultural features and the bluff edge. Where the grading plan specified cutting of soil, an AMEC archaeologist monitored work. Observations are documented in the AIMR (Appendix A).

East of the conform line, backfill was placed, graded, and compacted. Generally, an excavator was used to place soil on steeper slopes and a dozer was used to place backfill on shallower slopes. Slopes that required over-building were finish-graded and cut back with the dozer using a blade-mounted GPS unit and checked with the rover GPS unit. Soil was compacted using a tow-behind barrel sheep's foot roller, sheep's foot excavator attachment, jumping jack, vibroplate, or walk-behind trench roller. Over and in the vicinity of identified archaeological features, backfill was placed and compacted using hand-operated equipment and work was observed by the archaeological monitor.

No backfill was placed on slopes west of the conform line. The soil surface was treated by track-walking with the dozer or excavator and smoothing out and packing down low spots that could serve as preferential surface water pathways with the excavator bucket.

12.5 COMPACTION OBSERVATION

Compaction observation and testing was performed by AMEC generally on a daily basis over the duration of placement to observe placement and compaction of backfill. Compaction tests were performed using a nuclear density gauge on compacted import fill and aggregate base (AB) used for the surface of the temporary trail (discussed in Section 13.2 below). The compaction criteria was 85 to 90% of maximum dry density for import fill and the upper 16 inches (two lifts) in vegetated areas; and 90% of maximum dry density for the temporary trail surface. The AB trail surface compaction criterion was 95% of maximum dry density. Field density tests performed by AMEC's CQA staff were used to verify that the required compaction was achieved. Areas which did not meet the compaction requirements were moisture conditioned, re-worked and/or re-compacted as necessary. AMEC field compaction test records are provided in Appendix O. The compaction testing results meet project criteria or were acceptable to the Design Engineer and CM based on location of the tests and field conditions.

12.6 POST-CONSTRUCTION GRADING SURVEY

Following the conclusion of the post-excavation grading, Ford's subcontractor, F_3, surveyed Site topography to document final grades and constructed features. The final post-construction topographic survey was conducted on September 20 and October 11, 2013. The survey provided by Ford is included in Appendix I. As-built drawing N-2 (Appendix N) Post Construction Grading Plan presents the final surface and topographic features.

12.7 TOTAL SOIL VOLUME IMPORTED

Following the post-excavation grading topographic survey (Appendix I), the estimated volume of imported soil was calculated by comparing the post-remedial excavation and post-excavation grading topographic survey contours. Based on calculations based on these surveys, it is estimated that approximately 3,400 cy (in place) of imported soil was placed as backfill at the Site.

13.0 FINAL SURFACE COMPLETION

13.1 PLACEMENT OF FINAL EROSION CONTROL MEASURES

Semi-permanent erosion control measures consisting of rice straw mulch, long-lasting (up to 36 months) coconut fiber erosion control blankets, and straw wattles were specified for the final surface completion across the Site, pending future planting and re-vegetation to be completed by others. In an effort to reduce the potential for fugitive dust, erosion control materials were installed progressively as each area of the Site was completed. Erosion control measures implemented during construction are shown on the as-built drawing N-3 included in Appendix N.

The SWPPP and Construction Drawings specified three types of erosion control blankets, ranging in durability, with the highest durability material to be placed on the steepest slopes and

in areas of potential concentrated surface water runoff. In consultation with the engineer, CM, and the Trust, Ford determined that as a conservative measure, the most durable material (EXCEL CC-4 All Natural Extended Term Erosion Control Blanket, 100% coconut fiber) would be installed throughout areas impacted by construction activities. Blanket staking patterns remained as designed. Rice straw was placed below the erosion control blankets with the exception of the temporary trail.

Wattle was initially installed on the trail surface per design drawings, but based on a post-grading inspection, it was determined that additional straw wattle was necessary to protect the temporary trail immediately west of the concrete batteries. Final alignment of the wattle and locations of erosion control materials are presented in Appendix N, Drawing N-3.

13.2 TEMPORARY TRAIL SURFACING AND POST AND CABLE FENCE

Upon direction of the Trust, AMEC provided Ford with construction sketches for an approximately 8-foot wide temporary trail. The trail was intended to align with the east side of the Coastal Trail platform that will be constructed by the NPS following completion of remediation work at the Site. During grading and cutting for the temporary trail at the north end of the Site, an archaeological feature (part of a West Battery magazine) was encountered, requiring that the trail platform be re-routed to the west as shown on Figure 2. Additionally, at the southern end of the trail at the location of the temporary access bridge, six steps were constructed to link the temporary trail to stairs on the east side of Battery Marcus Miller. To restrict visitors to the trail for protection of restored habitat on the frontal slopes, Ford installed a wooden post and cable fence along the west side of the trail.

14.0 DEMOBILIZATION

The following section discusses Site demobilization activities.

14.1 TEMPORARY FACILITIES AND EQUIPMENT

Heavy construction equipment was transferred across the temporary bridge to the Site staging area to be cleaned and demobilized from the Site when it was no longer needed for construction work. After the temporary access bridge was demobilized, smaller support equipment (e.g., skid steer and backhoe) remained on the west side of the batteries to perform finish work. Ford maintained temporary facilities until mid-October at which point they were demobilized and the fencing was removed on October 25, 2013.

14.2 TEMPORARY BRIDGE AND ABUTMENT REMOVAL AND RESTORATION

Ford removed the temporary access bridge following the manufacturer's (Mabey's) recommendations and direction. The western abutment structures were pulled across the elevated bridge span prior to deconstruction of the bridge. After the bridge was removed, the western abutment location was re-graded in preparation for construction of the temporary trail.

The east abutment and access ramp were removed and the ground surface was re-graded to match existing conditions and covered with erosion control materials.

14.3 STAGING AREA CLEANUP

Once all staged soil was transported off-site (including the liner), the soil staging area was deconstructed. Additionally, approximately 4 inches of material from the existing gravel area that had been used as a haul road, was removed, transported, and disposed of offsite. The gravel parking area was "top dressed" with aggregate base from an approved quarry (West Coast Aggregates).

15.0 SITE INSPECTIONS AND MEETINGS

Regular weekly meetings were held at 10:00 am every Thursday morning to discuss the status of work and to resolve technical issues. Meeting notes are presented in Appendix P. Ford conducted weekly SWPPP/BMP inspections and additional inspections following storm events. SWPPP/BMP inspection forms are presented in Appendix F.

Throughout the project, DTSC and the NPS performed periodic Site inspections. NPS attended the weekly meetings, the final Site walk-through on October 3, 2013, and the NPS final walk through on October 22, 2013. DTSC was onsite on July 2, 12, 17, 22, and 25, August 8, September 11, and attended the final Site walk-through on October 3, 2013.

During the course of construction, the Design Engineer and CQA engineer visited the Site to confirm that work was performed in accordance with Construction Drawings and to resolve technical issues. An AMEC geotechnical engineer also visited the Site to provide recommendations concerning compaction and grading. During backfilling and grading work, AMEC technicians were onsite to supervise and conduct compaction tests.

Meetings with the project team and with regulatory personnel were recorded in the notes of Weekly Meetings, which were maintained in the Trust Sharepoint website. In addition, the CM prepared weekly progress reports that provided a summary of major work activities performed.

The multidisciplinary oversight of the BBDA 1A remediation project resulted in several field data collection and documentation efforts. Daily work activities were documented by the CM in daily field logs which were maintained onsite and scanned and saved into the Trust Sharepoint site. The daily logs included the following information: date, weather and Site conditions, equipment on-site, summary of work performed that day, sampling and monitoring activities including soil confirmation sampling, and compaction testing, a Site visitor log, and list of contractor personnel working on-site. Additionally, the archaeologist maintained daily logs and crack monitoring records, the CQA inspector maintained field notes and compaction test results, Earthshine maintained air monitoring records, Ford maintained sign-in sheets from the health and safety tailgate meetings and SWPPP inspection forms.

Photographs were taken daily to document key work activities and the progress of work during remedial construction. A photographic log was prepared and was stored along with the photos in the Trust Sharepoint site. Appendix E contains selected photographs that document work activities and are representative of photographs taken during the course of the project.

Pertinent field documentation is provided in the appendices of this report.

16.0 POST CONSTRUCTION ACTIVITIES

16.1 PROJECT COMPLETION

Following a Site walk by the CM and Design Engineer, the CM developed a "punch list" consisting of minor deficiencies and close-out items and presented it to the Contractor on October 8, 2013. During the following two weeks, the Contractor corrected and/or completed the punch list items. The CM and Design Engineer again walked the Site on October 22, 2013, at which time the Design Engineer indicated the project work was completed.

An additional Site walk was held on October 22, 2013 with the CM, NPS, and Conservancy. The NPS and Conservancy had no additional concerns or requests and accepted the project as complete. The Site security fencing was removed and the Site was opened to the public on October 25, 2013. Final acceptance by the Design Engineer (Submittal 27) was provided on November 27, 2013 following a review of the Certificate of Project Completion and the final Site surveys submitted by the Contractor on November 15, 2013 and November 22, 2013, respectively.

The project tasks completed and CQA Officer Certification are presented in Appendix Q.

16.2 EROSION CONTROL MONITORING

Monitoring of the final erosion control measures commences after completion of work pending future planting and Site restoration work by others. Monitoring will include inspections to document the following:

- Inspection of erosion control measures already in place including straw wattles, coconut erosion control blankets, and plantings.
- Inspection of the exposed storm water discharge locations on the slopes.
- Inspection of the area near the historic storm drain that was not located in the field for seeps or other signs of drainage irregularities.
- Inspection of trail post and cable fencing utilized to keep visitors off the re-vegetated areas.
- Inspection of Site signage utilized to keep visitors off the re-vegetated areas and away from slopes/cliffs.

17.0 SUMMARY AND CONCLUSIONS

Remedial action was implemented at BBDA 1A in accordance with the FS/RAP, RDIP, and Remedial Design Drawings and Technical Provisions (AMEC, 2013a-c). Remedial action began in February 2013 with bird surveys, vegetation removal, and pre-excavation confirmation soil sampling. The Remediation Contractor (Ford) mobilized to the Site in June 2013 and completed work and demobilized from the Site in October 2013.

The RAOs for the remedial action at BBDA 1A were achieved through removal of source material (asphalt debris) and soil containing COCs at concentrations that posed risk to human health and the environment. Soil and asphalt debris were excavated from the bluff tops and slopes west of Batteries Cranston and Marcus Miller following means and methods protective of the surrounding natural and cultural resources. These methods included deployment of a temporary bridge specifically designed and situated to limit impacts to cultural resources, establishment of exclusion zones, archaeological monitoring, and use of hand tools for removal of soil in the vicinity of cultural resources. During remedial construction, 25 cultural features were encountered including elements of the West Battery that were not known to have been present in the area including a parapet wall, gun pintle, and magazines.

The excavation area limits were defined by results of pre-excavation confirmation soil samples collected in March 2013 as well as samples from previous remedial investigations. Impacted soil and asphalt debris were excavated and removed from the defined excavation area and confirmation soil samples were collected from the floor of the completed excavation to confirm that COC concentrations in remaining soil were below Site-specific cleanup levels. Where results from initial soil excavation confirmation samples indicated COCs were present at concentrations that posed risk, soil was further excavated and re-sampled. Results of final excavation confirmation soil samples and perimeter samples collected prior to construction, showed that residual COC concentrations did not pose risk to human health and the environment.

Remedial excavation work resulted in removal of approximately 7,992 tons of soil containing asphalt debris and COCs that was disposed of as Class II nonhazardous waste. Following excavation and collection of confirmation soil samples, the Site was backfilled and graded to reflect historic Endicott-era topography and to provide slopes that were at least as stable as prior to remedial construction. The Site was left in a condition compatible with NPS plans for trail construction and restoration as open space natural habitat.

Based on observations made during remedial construction, and results of final excavation confirmation samples showing that residual COC concentrations do not pose risk to human health and the environment, the remedial action at BBDA 1A meets the RAOs (Section 2.1 of this document).

18.0 REFERENCES

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March 2, 2013. *Email from Doug Bablitch to Angela Liang Cutting (Roux) DI Aggregate for Import Soil.*

April 8, 2013. *Email from Doug Bablitch to Ron Peterson (DI), Eileen Fanelli (Trust) and Angela Liang Cutting (Roux); Proposed Design Criteria for Presidio Trust Import Material.*

TABLES

TABLE 1

CLEANUP LEVELS FOR SOIL

Construction Completion Report, Remedial Design Implementation

Baker Beach Disturbed Area 1A, Presidio of San Francisco, California

COCs	Applicable Cleanup Levels							Site-Specific Cleanup Level		
	Human Health Soil Target Level/PRGs			Ecological PRGs [b]		Background Level [b]		Ecological Buffer Zone[c]	Ecological Special Status Species Zone[d]	
	Presidio-Wide [b]	Site-Specific [a]								
	Recreational	Recreational	Volunteer Worker	Special-Status Species	Buffer Zone	Serpentinite Lithology	Colma Formation		Serpentinite Lithology	Colma Formation
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
METALS										
Copper[e]	--	--	--	30	**120**	***85***	***49***	**120**	***85***	***49***
Lead	500	306	--	***160***	**300**	66	***7.5***	**300**	***160***	***160***
Silver[e]	870	--	--	***2***	**2**	1.7	***1***	**2**	***2***	***2***
Zinc	52,000	--	--	4	50	***160***	***60***	**160**	***160***	***60***
POLYNUCLEAR AROMATIC HYDROCARBONS										
Acenaphthene	6,600	--	--	***30***	**40**	--	--	**40**	***30***	***30***
Acenaphthylene	--	--	--	***30***	**40**	--	--	**40**	***30***	***30***
Anthracene	13,800	--	--	***30***	**40**	--	--	**40**	***30***	***30***
Benzo(a)anthracene	1.1	***2.5***	5.6	30	40	--	--	**2.5**	***2.5***	***2.5***
Benzo(a)pyrene	0.11	***0.25***	0.56	30	40	--	--	**0.25**	***0.25***	***0.25***
Benzo(b)fluoranthene	1.1	***2.5***	5.6	30	40	--	--	**2.5**	***2.5***	***2.5***
Benzo(g,h,i)perylene	1,400	--	--	***30***	**40**	--	--	**40**	***30***	***30***
Benzo(k)fluoranthene	11	***25***	56	30	40	--	--	**25**	***25***	***25***
Chrysene	106	254	564	***30***	**40**	--	--	**40**	***30***	***30***
Dibenzo(a,h)anthracene	0.11	***0.25***	0.56	30	40	--	--	**0.25**	***0.25***	***0.25***
Fluoranthene	1,900	--	--	***30***	**40**	--	--	**40**	***30***	***30***
Fluorene	1,800	--	--	***30***	**40**	--	--	**40**	***30***	***30***
Indeno(1,2,3-cd)pyrene	1.1	***2.54***	5.64	30	40	--	--	**2.5**	***2.5***	***2.5***
2-Methylnaphthalene	--	--	--	***30***	**40**	--	--	**40**	***30***	***30***
Naphthalene	1,100	--	--	***30***	**40**	--	--	**40**	***30***	***30***
Phenanthrene	1,400	--	--	***30***	**40**	--	--	**40**	***30***	***30***
Pyrene	1,400	--	--	***30***	**40**	--	--	**40**	***30***	***30***
PESTICIDES										
4,4'-DDT	3.5	--	--	***0.0082***	**0.53**	--	--	**0.53**	***0.0082***	***0.0082***

Notes:

Bold and italic values are the values selected as cleanup levels for ecological special status species zone.

Bold and underlined values are the values selected as cleanup levels for the ecological buffer zone.

Abbreviations:

-- = Not available/applicable.

COC= Chemical of concern.

mg/kg = Milligrams per kilogram.

Footnotes:

[a] Site-specific soil target levels/PRGs for carcinogenic polynuclear aromatic hydrocarbons and lead based on Appendix B (Site-Specific Human Health Risk Evaluation) and Appendix C (LeadSpread 8 Output) from the FS/RAP for BBDA 1A (AMEC, 2012).

[b] Ecological PRGs and background levels from Table 7-2 of the Cleanup Level Document (EKI, 2002, revised 2006).

[c] Based on the most stringent of Presidio ecological buffer zone PRGs, human health recreational PRGs, and site-specific recreational soil target levels unless the PRG is less than the background threshold level, then the cleanup level is set at the background level.

[d] Based on the most stringent of Presidio ecological special status species PRGs, human health recreational PRGs, and site-specific recreational soil target levels. For metals, if less than the the ecological or human health PRG background threshold level, then the cleanup level is set at the background level.

[e] COC in the southern portion of the site, near the BBDA 1 boundary.

TABLE 2

SUMMARY OF OBSERVED CULTURAL FEATURES
Construction Completion Report, Remedial Design Implementation
Baker Beach Disturbed Area 1A, Presidio of San Francisco, California

Feature #	Remedial Phase	Description	Temporary Field Designation
F-1	Vegetation Removal	Several (3) concrete slabs observed at the southern end of the eastern portion of the Site along the west slope of the Covered Way. Slabs were 4-5" thick, 36" x 18" long, poured concrete. They appeared to have been derived from another location.	F-1
F-2a	Vegetation Removal	Large concrete slab fragment and earthenware pipe fragment observed on the east slope above the Covered Way at the north end of eastern area of the Site. Earthenware pipe had brown glaze.	F-2a
F-2b	Vegetation Removal	Small buried fragment of concrete approximately 4" thick.	F-2b
F-2c	Vegetation Removal	2 boulder-sized fragments of brick and mortar. The largest fragment was 24" x 18" x 12". The smaller was 12" x 10" x 12". Both were two courses wide.	F-2c
F-2d	Vegetation Removal	Concrete fragment approximately 12" x 12" x 8" poured form slab. Possibly a corner.	F-2d
F-2e	Vegetation Removal	Large concrete fragment 36" x 24" x 8".	F-2e
F-2f	Vegetation Removal	Curved concrete fragment approximately 30" x 24" x 6".	F-2f
F-2g	Vegetation Removal	Very large portion of brick wall/roof partially exposed on slope crest east of Covered Way. Double-coursed and arched. 36" x 12" exposure, but based on surface may be as large as 60" long. A concrete fragment observed approximately 36" to the south.	F-2g
F-2h	Vegetation Removal	Concrete fragment 30" x 20" x 4" north of F-2f.	F-2h
F-2i	Vegetation Removal	Large iron fragments, possibly an "L" beam, 55" x 8" x 3". 2 rows of staggered bolt holes along width. Very rusted (possible corner frame for door).	F-2i
F-2j	Vegetation Removal	Very large fragment of brick and mortar from magazine, possibly a junction with the floor, 45" x 18" x 18". Four courses with 1 perpendicular course. Another fragment was found adjacent to the larger one (24" x 12").	F-2j

TABLE 2

SUMMARY OF OBSERVED CULTURAL FEATURES
Construction Completion Report, Remedial Design Implementation
Baker Beach Disturbed Area 1A, Presidio of San Francisco, California

Feature #	Remedial Phase	Description	Temporary Field Designation
F-2k	Vegetation Removal	Large fragment of brick wall with concrete. 4 courses (32” x 18”)	F-2k
F-2l	Vegetation Removal	Fragment of brick wall (24” x 20”).	F-2l
F-2m	Vegetation Removal	Large fragment of brick wall (40” x 24” x 18”). Directly south was a large concrete fragment.	F-2m
F-2n	Vegetation Removal	Small fragment of concrete (24” x 12”).	F-2n
F-3	Pre-Excavation Sampling	Concrete fragment.	ACH-1
F-4	Pre-Excavation Sampling	Concrete fragment.	ACH-1N
F-5	Pre-Excavation Sampling	Concrete culvert.	ACH-2
F-6	Pre-Excavation Sampling	Concrete fence post.	ACH-3
F-7	Pre-Excavation Sampling	Concrete fence post.	ACH-3B
F-8	Excavation	Clay pipe (12" diameter) with a brick and concrete headwall located on a west-facing slope. Brick and concrete fragments associated with the headwall were found further downslope.	F-8
F-9	Excavation	~10 foot diameter concentration of 20-30 brick and mortar fragments that extended down the west facing slope.	F-9
F-10	Excavation	Shelf of non-native clay soil located 14 inches below ground surface on the west edge of Battery Cranston during excavation of FSTP-600. The clay shelf extended 15 inches from the edge of the battery and contained wood fragments.	F-10
F-11	Excavation	Gun emplacement with parapet wall west of Battery Cranston.	F-11

TABLE 2

SUMMARY OF OBSERVED CULTURAL FEATURES
Construction Completion Report, Remedial Design Implementation
Baker Beach Disturbed Area 1A, Presidio of San Francisco, California

Feature #	Remedial Phase	Description	Temporary Field Designation
F-12	Excavation	Cobble and mortar drainage extending west from Battery Marcus Miller Gun Emplacement 3.	F-12
F-12b	Excavation	A discontinuous segment of cobble and mortar drainage feature, trending SE-NW, that was down slope and across the access route from F-12.	F-12b
F-13	Excavation	Cyclone Fence fragment.	F-12
F-13b	Excavation	Cyclone Fence fragment.	F-12b
F-13c	Excavation	Cyclone Fence fragment.	F-12c
F-13d	Excavation	Cyclone Fence fragment.	F-12d
F-13e	Excavation	Cyclone Fence fragment.	F-12e
F-14	Excavation	Exposed magazine projecting westward from beneath Battery Cranston.	F-14
F-15	Excavation	Cobble and mortar culvert extending west from Battery Marcus Miller Gun Emplacement 2.	F-15
F-16	Excavation	Pipe.	F-13
F-17	Excavation	Exposed magazine projecting westward from beneath Battery Marcus Miller Gun Emplacement 1.	F-17
F-18	Excavation	Concrete fragments.	F-13
F-19	Excavation	Metal fence post.	A4
F-20	Excavation	Metal fence post.	A6
F-21	Excavation	Metal fence post and concrete.	
F-22	Excavation	Metal fence post.	
F-23	Excavation	Metal fence post.	
F-24	Excavation	Metal fence post and concrete.	
F-25	Excavation	Possible magazine north of Feature 11.	F-11

TABLE 3

SAMPLING AND ANALYTICAL PROGRAM
Soil Sample Tracking Table, Excavation Confirmation Sampling
Construction Completion Report, Remedial Design Implementation
Baker Beach Disturbed Area 1A, Presidio of San Francisco, California

Station	Matrix	Sample Number[a]	Sample Type (primary, duplicate (10%), or QC)	Location (perimeter, bottom, other location)	Ecological Cleanup Level	Sample Depth Interval (feet bgs)	Grid Cell Number (North-South, East-West) 80 Cells: A(1-16) through E(1-16)	Date Sampled	COC/ SDG Number	Status (Standard, Rush)	Exceeds Cleanup Levels? YES / NO	Compound(s) Exceeding Cleanup Levels	Analyte Name	PAHs (All Samples)	Copper, Lead, Silver, Zinc; (Southern Portion of Site Only)	DDT (20% of total)	Percent moisture
													Test Method	8270 SIM	6020	8081A	D2216
BB1AEX232	soil	BB1AEX232[0.0]	Primary	Bottom	Eco Buffer	0.0	A4	7/2/2013	246654	24 hr	NO			X			X
BB1AEX233	soil	BB1AEX233[0.0]	Primary	Bottom	Eco special status	0.0	A16	7/17/2013	1314 / 247042	48 hr	NO			X			X
BB1AEX234	soil	BB1AEX234[0.0]	Primary	Bottom	Eco special status	0.0	B16	7/17/2013	1314 / 247042	48 hr	NO			X			X
BB1AEX235	soil	BB1AEX235[0.0]	Primary	Bottom	Eco special status	0.0	B15	7/17/2013	1314 / 247042	48 hr	NO			X			X
BB1AEX236	soil	BB1AEX236[0.0]	Primary	Perimeter	Eco special status	0.0	C15	7/17/2013	1314 / 247042	48 hr	YES	B(a)P	over-excavated and re-sampled	X			X
BB1AEX237	soil	BB1AEX237[0.0]	Primary	Bottom	Eco special status	0.0	C14	7/17/2013	1314 / 247042	48 hr	NO			X			X
BB1AEX238	soil	BB1AEX238[0.0]	Primary	Bottom	Eco special status	0.0	C12	7/19/2013	247138	48 hr	NO			X			X
BB1AEX239	soil	BB1AEX239[0.0]	Primary	Bottom	Eco special status	0.0	C11	7/19/2013	247138	48 hr	NO			X			X
BB1AEX239	soil	DUP071913	Duplicate	Bottom	Eco special status	0.0	C11	7/19/2013	247138	48 hr	NO			X			X
BB1AEX240	soil	BB1AEX240[0.0]	Primary	Bottom	Eco special status	0.0	C10	7/19/2013	247138	48 hr	NO			X			X
BB1AEX241	soil	BB1AEX241[0.0]	Primary	Bottom	Eco special status	0.0	C09	7/19/2013	247138	48 hr	NO			X			X
BB1AEX242	soil	BB1AEX242[0.0]	Primary	Bottom	Eco special status	0.0	D09	7/19/2013	247138	48 hr	NO			X			X
BB1AEX243	soil	BB1AEX243[0.0]	Primary	Bottom	Eco special status	0.0	D8	7/23/2013	247193	24 hr	NO			X			X
BB1AEX244	soil	BB1AEX244[0.0]	Primary	Perimeter (over-excavation)	Eco special status	0.0	C15	7/23/2013	247193	24 hr	NO			X			X
BB1AEX245	soil	BB1AEX245[0.0]	Primary	Bottom (near battery concrete frontal slope)	Eco Buffer	0.0	C1	7/23/2013	247193	24 hr	YES	B(a)P	over-excavated and re-sampled	X	X	X	X
BB1AEX246	soil	BB1AEX246[0.0]	Primary	Bottom	Eco Buffer	0.0	C1	7/23/2013	247193	24 hr	NO			X	X	X	X
BB1AEX246	soil	DUP072313	Duplicate	Bottom	Eco Buffer	0.0	C1	7/23/2013	247193	24 hr	NO			X	X	X	X
BB1AEX247	soil	BB1AEX247[0.0]	Primary	Bottom	Eco special status	0.0	C2	7/25/2013	1316 / 247288	48 hr	NO			X	X	X	X
BB1AEX248	soil	BB1AEX248[0.0]	Primary	Bottom	serp Eco ss	0.0	D1	7/25/2013	1316 / 247288	48 hr	NO			X	X	X	X
BB1AEX249	soil	BB1AEX249[0.0]	Primary	Bottom	serp Eco ss	0.0	D2	7/25/2013	1316 / 247288	48 hr	NO			X			
BB1AEX249	soil	DUP072513	Duplicate	Bottom	serp Eco ss	0.0	D2	7/25/2013	1316 / 247288	48 hr	NO			X			X
BB1AEX250	soil	BB1AEX250[0.0]	Primary	Bottom	Eco special status	0.0	C8	7/26/2013	1317 / 247325	24 hr	NO			X			X
BB1AEX251	soil	BB1AEX251[0.0]	Primary	Bottom	Eco special status	0.0	C7	7/26/2013	1317 / 247325	24 hr	NO			X			X
BB1AEX252	soil	BB1AEX252[0.0]	Primary	Bottom	Eco special status	0.0	C6	7/26/2013	1317 / 247325	24 hr	NO			X			X
BB1AEX253	soil	BB1AEX253[0.0]	Primary	Bottom	Eco special status	0.0	D7	7/26/2013	1317 / 247325	24 hr	NO			X			X
BB1AEX254	soil	BB1AEX254[0.0]	Primary	Bottom	Eco special status	0.0	D6	7/26/2013	1317 / 247325	24 hr	NO			X			X

TABLE 3

SAMPLING AND ANALYTICAL PROGRAM
Soil Sample Tracking Table, Excavation Confirmation Sampling
Construction Completion Report, Remedial Design Implementation
Baker Beach Disturbed Area 1A, Presidio of San Francisco, California

Station	Matrix	Sample Number[a]	Sample Type (primary, duplicate (10%), or QC)	Location (perimeter, bottom, other location)	Ecological Cleanup Level	Sample Depth Interval (feet bgs)	Grid Cell Number (North-South, East-West) 80 Cells: A(1-16) through E(1-16)	Date Sampled	COC/ SDG Number	Status (Standard, Rush)	Exceeds Cleanup Levels? YES / NO	Compound(s) Exceeding Cleanup Levels	Analyte Name	PAHs (All Samples)	Copper, Lead, Silver, Zinc; (Southern Portion of Site Only)	DDT (20% of total)	Percent moisture
													Test Method	8270 SIM	6020	8081A	D2216
BB1AEX255	soil	BB1AEX255[0.0]	Primary	Bottom	Eco Buffer	0.0	A10	7/26/2013	1317 / 247325	24 hr	NO			X			X
BB1AEX256	soil	BB1AEX256[0.0]	Primary	Bottom	Eco Buffer	0.0	A9	7/26/2013	1317 / 247325	24 hr	YES	B(a)P, Benzo(b)fluoranthene	over-excavated and re-sampled	X			X
BB1AEX257	soil	BB1AEX257[0.0]	Primary	Bottom	Eco Buffer	0.0	A8	7/26/2013	1317 / 247325	24 hr	YES	B(a)P	over-excavated and re-sampled	X			X
BB1AEX258	soil	BB1AEX258[0.0]	Primary	Bottom	Eco Buffer	0.0	A15	7/26/2013	1317 / 247325	24 hr	NO			X			X
BB1AEX259	soil	BB1AEX259[0.0]	Primary	Bottom	Eco Buffer	0.0	A11	7/26/2013	1317 / 247325	24 hr	YES	B(a)P	over-excavated and re-sampled	X			X
BB1AEX259	soil	DUP072613	Duplicate	Bottom	Eco Buffer	0.0	A11	7/26/2013	1317 / 247325	24 hr	NO		over-excavated and re-sampled	X			X
BB1AEX260	soil	BB1AEX260[0.0]	Primary	Bottom	Eco Buffer	0.0	A14	7/29/2013	247360	24 hr	NO			X			X
BB1AEX261	soil	BB1AEX261[0.0]	Primary	Bottom	Eco Buffer	0.0	A13	7/29/2013	247360	24 hr	YES	B(a)P	over-excavated and re-sampled	X			X
BB1AEX262	soil	BB1AEX262[0.0]	Primary	Bottom	Eco Buffer	0.0	B13	7/29/2013	247360	24 hr	NO			X			X
BB1AEX263	soil	BB1AEX263[0.0]	Primary	Bottom	Eco Buffer	0.0	B12	7/29/2013	247360	24 hr	NO			X			X
BB1AEX264	soil	BB1AEX264[0.0]	Primary	Bottom	Eco Buffer	0.0	A12	7/29/2013	247360	24 hr	NO			X			X
BB1AEX265	soil	BB1AEX265[0.0]	Primary	Bottom	Eco special status	0.0	B11	7/29/2013	247360	24 hr	NO			X			X
BB1AEX266	soil	BB1AEX266[0.0]	Primary	Bottom	Eco special status	0.0	B10	7/29/2013	247360	24 hr	NO			X			X
BB1AEX266	soil	DUP072913	Duplicate	Bottom	Eco special status	0.0	B10	7/29/2013	247360	24 hr	YES	B(a)P	no-over ex recommended	X			X
BB1AEX267	soil	BB1AEX267[0.0]	Primary	Bottom	Eco special status	0.0	B9	7/29/2013	247360	24 hr	YES	B(a)P	no-over ex recommended	X			X
BB1AEX268	soil	BB1AEX268[0.0]	Primary	Bottom	Eco special status	0.0	B8	7/29/2013	247360	24 hr	No			X			X
BB1AEX269	soil	BB1AEX269[0.0]	Primary	Bottom	Eco special status	0.0	B7	7/29/2013	247360	24 hr	YES	Benzo(a)anthracene, B(a)P, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene	over-excavated and re-sampled	X			X
BB1AEX270	soil	BB1AEX270[0.0]	Primary	Bottom	Eco special status	0.0	D5	7/29/2013	247360	24 hr	NO			X			X
BB1AEX271	soil	BB1AEX271[0.0]	Primary	Bottom	Eco special status	0.0	C3	7/29/2013	247360	24 hr	YES	B(a)P	over-excavated and re-sampled	X			X
BB1AEX272	soil	BB1AEX272[0.0]	Primary	Bottom (overexcavation)	Eco Buffer	0.0	C1	7/30/2013	247413	24 hr	NO			X	X	X	X
BB1AEX273	soil	BB1AEX273[0.0]	Primary	Bottom	Eco Buffer	0.0	B2	7/30/2013	247413	24 hr	YES	Benzo(a)anthracene, B(a)P, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	over-excavated and re-sampled	X			X
BB1AEX274	soil	BB1AEX274[0.0]	Primary	Bottom	Eco Buffer	0.0	A7	7/30/2013	247413	24 hr	YES	Benzo(a)anthracene, B(a)P, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	over-excavated and re-sampled	X			X

TABLE 3

SAMPLING AND ANALYTICAL PROGRAM
Soil Sample Tracking Table, Excavation Confirmation Sampling
Construction Completion Report, Remedial Design Implementation
Baker Beach Disturbed Area 1A, Presidio of San Francisco, California

Station	Matrix	Sample Number[a]	Sample Type (primary, duplicate (10%), or QC)	Location (perimeter, bottom, other location)	Ecological Cleanup Level	Sample Depth Interval (feet bgs)	Grid Cell Number (North-South, East-West) 80 Cells: A(1-16) through E(1-16)	Date Sampled	COC/ SDG Number	Status (Standard, Rush)	Exceeds Cleanup Levels? YES / NO	Compound(s) Exceeding Cleanup Levels	Analyte Name	PAHs (All Samples)	Copper, Lead, Silver, Zinc; (Southern Portion of Site Only)	DDT (20% of total)	Percent moisture
													Test Method	8270 SIM	6020	8081A	D2216
BB1AEX275	soil	BB1AEX275[0.0]	Primary	Bottom	Eco Buffer	0.0	A6	7/30/2013	247413	24 hr	YES	Benzo(a)anthracene, B(a)P, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	over-excavated and re-sampled	X			X
BB1AEX276	soil	BB1AEX276[0.0]	Primary	Bottom	Eco special status	0.0	B6	7/30/2013	247413	24 hr	NO			X			X
BB1AEX277	soil	BB1AEX277[0.0]	Primary	Bottom	Eco special status	0.0	B5	7/30/2013	247413	24 hr	NO			X			X
BB1AEX278	soil	BB1AEX278[0.0]	Primary	Bottom (overexcavation)	Eco Buffer	0.0	B2	8/2/2013	18353	24 hr	NO			X			X
BB1AEX279	soil	BB1AEX279[0.0]	Primary	Bottom	Eco Buffer	0.0	B3	8/2/2013	18353	24 hr	NO			X			X
BB1AEX280	soil	BB1AEX280[0.0]	Primary	Bottom (overexcavation)	Eco special status	0.0	C3	8/2/2013	18353	24 hr	NO			X			X
BB1AEX281	soil	BB1AEX281[0.0]	Primary	Bottom	Eco special status	0.0	C4	8/2/2013	18353	24 hr	NO			X			X
BB1AEX282	soil	BB1AEX282[0.0]	Primary	Bottom	Eco special status	0.0	C5	8/2/2013	18353	24 hr	NO			X			X
BB1AEX283	soil	BB1AEX283[0.0]	Primary	Bottom	Eco special status	0.0	B4	8/2/2013	18353	24 hr	YES	B(a)P	over-excavated	X			X
BB1AEX284	soil	BB1AEX284[0.0]	Primary	Bottom (overexcavation)	Eco Buffer	0.0	A6	8/2/2013	18353	24 hr	YES	B(a)P	over-excavated	X			X
BB1AEX285	soil	BB1AEX285[0.0]	Primary	Bottom (overexcavation)	Eco Buffer	0.0	A7	8/2/2013	18353	24 hr	YES	B(a)P	over-excavated	X			X
BB1AEX286	soil	BB1AEX286[0.0]	Primary	Bottom (overexcavation)	Eco special status	0.0	B7	8/2/2013	18353	24 hr	NO			X			X
BB1AEX286	soil	DUP080213	Duplicate	Bottom (overexcavation)	Eco special status	0.0	B7	8/2/2013	18353	24 hr	NO			X			X
BB1AEX287	soil	BB1AEX287[0.0]	Primary	Bottom (overexcavation)	Eco Buffer	0.0	A8	8/2/2013	18353	24 hr	NO			X			X
BB1AEX288	soil	BB1AEX288[0.0]	Primary	Bottom (overexcavation)	Eco Buffer	0.0	A9	8/2/2013	18353	24 hr	NO			X			X
BB1AEX289	soil	BB1AEX289[0.0]	Primary	Bottom (overexcavation)	Eco Buffer	0.0	A11	8/2/2013	18353	24 hr	NO			X			X
BB1AEX290	soil	BB1AEX290[0.0]	Primary	Bottom (overexcavation)	Eco Buffer	0.0	A13	8/2/2013	18353	24 hr	NO			X			X
BB1AEX291	soil	BB1AEX291[0.5]	Primary	Bottom (overexcavation)	Eco special status	0.5	B4	8/7/2013	18354	24 hr	NO			X			X
BB1AEX291	soil	BB1AEX291[1.0]	Primary	Bottom (overexcavation)	Eco special status	1.0	B4	8/7/2013	18354	HOLD				X			X
BB1AEX292	soil	BB1AEX292[1.0]	Primary	Bottom (overexcavation)	Eco Buffer	1.0	A6	8/7/2013	18354	24 hr	NO			X			X

TABLE 3

SAMPLING AND ANALYTICAL PROGRAM
Soil Sample Tracking Table, Excavation Confirmation Sampling
Construction Completion Report, Remedial Design Implementation
Baker Beach Disturbed Area 1A, Presidio of San Francisco, California

Station	Matrix	Sample Number[a]	Sample Type (primary, duplicate (10%), or QC)	Location (perimeter, bottom, other location)	Ecological Cleanup Level	Sample Depth Interval (feet bgs)	Grid Cell Number (North-South, East-West) 80 Cells: A(1-16) through E(1-16)	Date Sampled	COC/ SDG Number	Status (Standard, Rush)	Exceeds Cleanup Levels? YES / NO	Compound(s) Exceeding Cleanup Levels	Analyte Name	PAHs (All Samples)	Copper, Lead, Silver, Zinc; (Southern Portion of Site Only)	DDT (20% of total)	Percent moisture
													Test Method	8270 SIM	6020	8081A	D2216
BB1AEX292	soil	BB1AEX292[2.0]	Primary	Bottom (overexcavation)	Eco Buffer	2.0	A6	8/7/2013	18354	HOLD				X			X
BB1AEX293	soil	BB1AEX293[1.0]	Primary	Bottom (overexcavation)	Eco Buffer	1.0	A7	8/7/2013	18354	24 hr	NO			X			X
BB1AEX293	soil	BB1AEX293[2.0]	Primary	Bottom (overexcavation)	Eco Buffer	2.0	A7	8/7/2013	18354	HOLD				X			X
BB1AEX294	soil	BB1AEX294[0.0]	Primary	Bottom (overexcavation)	Eco Buffer	0.0	A7	8/7/2013	18354	24 hr	NO			X			X
BB1AEX294	soil	BB1AEX294[1.0]	Primary	Bottom (overexcavation)	Eco Buffer	1.0	A7	8/7/2013	18354	HOLD				X			X
BB1AEX294	soil	BB1AEX294[2.0]	Primary	Bottom (overexcavation)	Eco Buffer	2.0	A7	8/7/2013	18354	HOLD				X			X
BB1AEX295	soil	BB1AEX295[0.0]	Primary	Bottom (overexcavation)	Eco Buffer	0.0	A6	8/7/2013	18354	24 hr	NO			X			X
BB1AEX295	soil	BB1AEX295[1.0]	Primary	Bottom (overexcavation)	Eco Buffer	1.0	A6	8/7/2013	18354	HOLD				X			X
BB1AEX295	soil	BB1AEX295[2.0]	Primary	Bottom (overexcavation)	Eco Buffer	2.0	A6	8/7/2013	18354	HOLD				X			X

[a] Actual sample depth has been entered in parentheses at the end of the sample number for primary samples. For duplicate samples, the sample date has been entered following the DUP designation. If more than one duplicate sample is collected on a given day, '-1', '-2' will follow the date.

Sample location has been over-excavated and re-sampled.

B(a)P = Benzo (a)pyrene.

TABLE 4

CONFIRMATION SOIL SAMPLE ANALYTICAL RESULTS
Ecological Special Status Species Zone and Colma Formation Soil
BBDA 1A Construction Completion Report, Presidio of San Francisco, California

			Analyte Cleanup Level	4,4'-DDT 0.0082 mg/kg		2-Methylnaphthalene 30 mg/kg		Acenaphthene 30 mg/kg		Acenaphthylene 30 mg/kg		Anthracene 30 mg/kg		Benzo(a) anthracene 2.5 mg/kg		Benzo(a)pyrene 0.25 mg/kg		Benzo(b) fluoranthene 2.5 mg/kg		Benzo(g,h,i) perylene 30 mg/kg		Benzo(k) fluoranthene 25 mg/kg	
Station Name	Sample Number	Cell ID	Sample Date	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual
BB1AEX233	BB1AEX233[0.0]	A16	17-Jul-13	NA		ND(0.0055)		**0.0013**	**/J**	**0.0065**		**0.0040**	**/J**	**0.018**		**0.028**		**0.036**		**0.008**		**0.012**	
BB1AEX234	BB1AEX234[0.0]	B16	17-Jul-13	NA		**0.068**		**0.0084**	**/J**	**0.033**		**0.023**		**0.076**		**0.093**		**0.12**		**0.022**		**0.041**	
BB1AEX235	BB1AEX235[0.0]	B15	17-Jul-13	NA		**0.011**		**0.0038**	**/J**	**0.021**		**0.013**		**0.051**		**0.070**		**0.089**		**0.016**		**0.024**	
~~BB1AEX236~~	~~BB1AEX236[0.0]~~	~~C15~~	~~17-Jul-13~~	~~NA~~		~~0.22~~		~~0.060~~		~~0.31~~		~~0.20~~		~~0.72~~		~~0.90~~		~~1.2~~		~~0.15~~		~~0.35~~	
BB1AEX237	BB1AEX237[0.0]	C14	17-Jul-13	NA		**0.0013**	**/J**	ND(0.0057)		**0.0069**		**0.0035**	**/J**	**0.028**		**0.038**		**0.053**		**0.0088**		**0.012**	
BB1AEX238	BB1AEX238[0.0]	C12	19-Jul-13	NA		ND(0.0052)		ND(0.0052)		**0.0021**	**/J**	ND(0.0052)		**0.0026**	**/J**	**0.0045**	**/J**	**0.0062**		**0.0054**		**0.0017**	**/J**
BB1AEX239	BB1AEX239[0.0]	C11	19-Jul-13	NA		**0.0025**	**/J**	ND(0.0056)		**0.018**	**J**	**0.0069**	**J**	**0.033**	**J**	**0.019**	**J**	**0.11**	**J**	**0.059**	**J**	**0.038**	**J**
BB1AEX239	DUP071913	C11	19-Jul-13	NA		**0.0054**	**/J**	**0.0015**	**/J**	**0.036**	**J**	**0.018**	**J**	**0.060**	**J**	**0.045**	**J**	**0.22**	**J**	**0.099**	**J**	**0.078**	**J**
BB1AEX240	BB1AEX240[0.0]	C10	19-Jul-13	NA		**0.0015**	**/J**	ND(0.0056)		**0.0044**	**/J**	**0.0023**	**/J**	**0.0077**		**0.016**		**0.014**		**0.014**		**0.0057**	
BB1AEX241	BB1AEX241[0.0]	C09	19-Jul-13	NA		ND(0.0052)		ND(0.0052)		ND(0.0052)		ND(0.0052)		ND(0.0052)		ND(0.0052)		ND(0.0052)		ND(0.0052)		ND(0.0052)	
BB1AEX242	BB1AEX242[0.0]	D09	19-Jul-13	NA		ND(0.0051)		ND(0.0051)		**0.0038**	**/J**	**0.003**	**/J**	**0.025**		**0.027**		**0.035**		**0.0078**		**0.013**	
BB1AEX243	BB1AEX243[0.0]	D8	23-Jul-13	NA		**0.0016**	**/J**	**0.0012**	**/J**	**0.016**		**0.016**		**0.088**		**0.093**		**0.11**		**0.042**		**0.039**	
BB1AEX244	BB1AEX244[0.0]	C15	23-Jul-13	NA		ND(0.007)		ND(0.007)		**0.0020**	**/J**	ND(0.007)		**0.0060**	**/J**	**0.0072**		**0.0087**		**0.0054**	**/J**	**0.0032**	**/J**
BB1AEX247	BB1AEX247[0.0]	C2	25-Jul-13	ND(0.0036)	UJ	**0.043**		**0.013**		**0.094**		**0.073**		**0.17**		**0.23**		**0.24**		**0.11**		**0.13**	
BB1AEX250	BB1AEX250[0.0]	C8	26-Jul-13	NA		**0.0054**	**/J**	**0.0020**	**/J**	**0.017**		**0.012**		**0.04**		**0.067**		**0.079**		**0.028**		**0.044**	
BB1AEX251	BB1AEX251[0.0]	C7	26-Jul-13	NA		ND(0.018)		ND(0.018)		**0.009**	**/J**	**0.0052**	**/J**	**0.037**		**0.047**		**0.057**		**0.018**	**/J**	**0.018**	**/J**
BB1AEX252	BB1AEX252[0.0]	C6	26-Jul-13	NA		ND(0.0055)		ND(0.0055)		ND(0.0055)		ND(0.0055)		ND(0.0055)		ND(0.0055)		ND(0.0055)		ND(0.0055)		ND(0.0055)	
BB1AEX253	BB1AEX253[0.0]	D7	26-Jul-13	NA		**0.0013**	**/J**	ND(0.0056)		**0.012**		**0.017**		**0.078**		**0.088**		**0.11**		**0.025**		**0.025**	
BB1AEX254	BB1AEX254[0.0]	D6	26-Jul-13	NA		**0.006**		**0.0017**	**/J**	**0.013**		**0.0090**		**0.030**		**0.045**		**0.067**		**0.012**		**0.02**	
BB1AEX265	BB1AEX265[0.0]	B11	29-Jul-13	NA		ND(0.0054)		ND(0.0054)		ND(0.0054)		ND(0.0054)		**0.0015**	**/J**	**0.0019**	**/J**	**0.0028**	**/J**	**0.0018**	**/J**	ND(0.0054)	
BB1AEX266	BB1AEX266[0.0]	B10	29-Jul-13	NA		**0.0089**		**0.0038**	**/J**	**0.045**	**J**	**0.028**	**J**	**0.082**	**J**	**0.13**	**J**	**0.16**	**J**	**0.083**	**J**	**0.048**	**J**
BB1AEX266	DUP072913	B10	29-Jul-13	NA		**0.012**	**/J**	**0.0069**	**/J**	**0.085**	**J**	**0.077**	**J**	**0.24**	**J**	**0.33**	**J**	**0.37**	**J**	**0.16**	**J**	**0.13**	**J**
BB1AEX267	BB1AEX267[0.0]	B9	29-Jul-13	NA		**0.019**		**0.0096**	**/J**	**0.10**		**0.056**		**0.21**		**0.31**		**0.37**		**0.17**		**0.11**	
BB1AEX268	BB1AEX268[0.0]	B8	29-Jul-13	NA		ND(0.0054)		ND(0.0054)		**0.0024**	**/J**	**0.0017**	**/J**	**0.0079**		**0.011**		**0.012**		**0.0095**		**0.0051**	**/J**
~~BB1AEX269~~	~~BB1AEX269[0.0]~~	~~B7~~	~~29-Jul-13~~	~~NA~~		~~3.6~~		~~0.38~~	~~/J~~	~~1.3~~		~~0.56~~		~~3.1~~		~~4.2~~		~~5.3~~		~~2.6~~		~~2.0~~	
BB1AEX270	BB1AEX270[0.0]	D5	29-Jul-13	NA		**0.004**	**/J**	**0.0013**	**/J**	**0.0083**		**0.0058**	**/J**	**0.022**		**0.028**		**0.039**		**0.014**		**0.013**	
~~BB1AEX271~~	~~BB1AEX271[0.0]~~	~~C3~~	~~29-Jul-13~~	~~NA~~		~~0.47~~		~~0.045~~		~~0.33~~		~~0.16~~		~~0.45~~		~~0.72~~		~~0.94~~		~~0.37~~		~~0.28~~	
BB1AEX276	BB1AEX276[0.0]	B6	30-Jul-13	NA		**0.0027**	**/J**	ND(0.0055)		**0.0066**		**0.0049**	**/J**	**0.019**		**0.025**		**0.03**		**0.021**		**0.0096**	
BB1AEX277	BB1AEX277[0.0]	B5	30-Jul-13	NA		ND(0.0055)		ND(0.0055)		ND(0.0055)		ND(0.0055)		ND(0.0055)		ND(0.0055)		ND(0.0055)		ND(0.0055)		ND(0.0055)	
BB1AEX280	BB1AEX280[0.0]	C3	02-Aug-13	NA		**0.016**		**0.0032**	**/J**	**0.025**		**0.013**		**0.044**		**0.07**		**0.09**		**0.021**		**0.020**	
BB1AEX281	BB1AEX281[0.0]	C4	02-Aug-13	NA		**0.026**		**0.0041**	**/J**	**0.038**		**0.018**		**0.059**		**0.082**		**0.11**		**0.057**		**0.034**	
BB1AEX282	BB1AEX282[0.0]	C5	02-Aug-13	NA		**0.0049**	**/J**	**0.0020**	**/J**	**0.024**		**0.028**		**0.036**		**0.048**		**0.072**		**0.027**		**0.024**	
~~BB1AEX283~~	~~BB1AEX283[0.0]~~	~~B4~~	~~02-Aug-13~~	~~NA~~		~~0.30~~		~~0.022~~	~~/J~~	~~0.17~~		~~0.097~~		~~0.20~~		~~0.31~~		~~0.43~~		~~0.20~~		~~0.12~~	
BB1AEX286	BB1AEX286[0.0]	B7	02-Aug-13	NA		ND(0.0060)		ND(0.0060)		ND(0.0060)		ND(0.0060)		**0.0018**	**/J**	**0.003**	**/J**	**0.0042**	**/J**	**0.0041**	**/J**	**0.0014**	**/J**
BB1AEX286	DUP080213	B7	02-Aug-13	NA		ND(0.0059)		ND(0.0059)		ND(0.0059)		ND(0.0059)		**0.0014**	**/J**	**0.0024**	**/J**	**0.0032**	**/J**	**0.0032**	**/J**	**0.0013**	**/J**
BB1AEX291	BB1AEX291[0.5]	B4	07-Aug-13	NA		ND(0.0056)		ND(0.0056)		ND(0.0056)		ND(0.0056)		ND(0.0056)		ND(0.0056)		ND(0.0056)		ND(0.0056)		ND(0.0056)	

Abbreviations, definitions and notes:
NA = Not analyzed.
Qual = data qualifier
mg/kg = milligrams per kilogram
ND(0.0055) = not detected at reporting limit indicated in parentheses
/J = Data qualifier indicating that result is and estimated value.
Values outlined in a box indicate that detected concentration exceeds the cleanup level.
Results shown in red font and ~~struck out~~ represent soil that has been over-excavated and resampled. Accordingly, those results are not considered representative of final confirmation soil sample results.

TABLE 4

CONFIRMATION SOIL SAMPLE ANALYTICAL RESULTS
Ecological Special Status Species Zone and Colma Formation Soil
BBDA 1A Construction Completion Report, Presidio of San Francisco, California

			Analyte Cleanup Level	Chrysene 30 mg/kg		Dibenzo(a,h) anthracene 0.25 mg/kg		Fluoranthene 30 mg/kg		Fluorene 30 mg/kg		Indeno (1,2,3-cd) pyrene 2.5 mg/kg		Naphthalene 30 mg/kg		Phenanthrene 30 mg/kg		Pyrene 30 mg/kg		Copper 49 mg/kg		Lead 160 mg/kg		Silver 2 mg/kg	
Station Name	Sample Number	Cell ID	Sample Date	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual
BB1AEX233	BB1AEX233[0.0]	A16	17-Jul-13	**0.029**		**0.0025**	**/J**	**0.055**		**0.0019**	**/J**	**0.0095**		**0.0017**	**/J**	**0.045**		**0.055**		NA		NA		NA	
BB1AEX234	BB1AEX234[0.0]	B16	17-Jul-13	**0.11**		**0.0083**	**/J**	**0.23**		**0.042**		**0.026**		**0.18**		**0.38**		**0.25**		NA		NA		NA	
BB1AEX235	BB1AEX235[0.0]	B15	17-Jul-13	**0.068**		**0.0055**	**/J**	**0.14**		**0.013**		**0.018**		**0.018**		**0.14**		**0.15**		NA		NA		NA	
~~BB1AEX236~~	~~BB1AEX236[0.0]~~	~~C15~~	~~17-Jul-13~~	~~**0.91**~~		~~**0.056**~~		~~**1.7**~~		~~**0.26**~~		~~**0.18**~~		~~**0.43**~~		~~**2.4**~~		~~**1.9**~~		~~NA~~		~~NA~~		~~NA~~	
BB1AEX237	BB1AEX237[0.0]	C14	17-Jul-13	**0.028**		**0.0028**	**/J**	**0.053**		**0.0023**	**/J**	**0.01**		**0.0023**	**/J**	**0.026**		**0.062**		NA		NA		NA	
BB1AEX238	BB1AEX238[0.0]	C12	19-Jul-13	**0.0051**	**/J**	**0.0011**	**/J**	**0.0066**		ND(0.0052)		**0.0037**	**/J**	ND(0.0052)		**0.0044**	**/J**	**0.011**		NA		NA		NA	
BB1AEX239	BB1AEX239[0.0]	C11	19-Jul-13	**0.13**		**0.017**	**J**	**0.14**		**0.0025**	**/J**	**0.045**	**J**	**0.0096**	**J**	**0.2**		**0.18**		NA		NA		NA	
BB1AEX239	DUP071913	C11	19-Jul-13	**0.21**		**0.032**	**J**	**0.21**		**0.0072**		**0.086**	**J**	**0.018**	**J**	**0.23**		**0.28**		NA		NA		NA	
BB1AEX240	BB1AEX240[0.0]	C10	19-Jul-13	**0.012**		**0.0029**	**/J**	**0.019**		**0.0019**	**/J**	**0.011**		**0.0037**	**/J**	**0.02**		**0.024**		NA		NA		NA	
BB1AEX241	BB1AEX241[0.0]	C09	19-Jul-13	ND(0.0052)		ND(0.0052)		ND(0.0052)		ND(0.0052)		ND(0.0052)		ND(0.0052)		ND(0.0052)		ND(0.0052)		NA		NA		NA	
BB1AEX242	BB1AEX242[0.0]	D09	19-Jul-13	**0.033**		**0.0028**	**/J**	**0.037**		**0.0011**	**/J**	**0.0070**		**0.0014**	**/J**	**0.015**		**0.055**		NA		NA		NA	
BB1AEX243	BB1AEX243[0.0]	D8	23-Jul-13	**0.11**		**0.016**		**0.18**		**0.0057**		**0.047**		**0.0036**	**/J**	**0.11**		**0.17**		NA		NA		NA	
BB1AEX244	BB1AEX244[0.0]	C15	23-Jul-13	**0.0079**		ND(0.0070)		**0.013**		ND(0.007)		**0.0042**	**/J**	ND(0.007)		**0.010**		**0.015**		NA		NA		NA	
BB1AEX247	BB1AEX247[0.0]	C2	25-Jul-13	**0.24**		**0.035**		**0.51**		**0.050**		**0.11**		**0.08**		**0.62**		**0.61**		**16.**		**8.5**		**0.054**	**/J**
BB1AEX250	BB1AEX250[0.0]	C8	26-Jul-13	**0.07**		**0.0055**	**/J**	**0.078**		**0.0088**		**0.018**		**0.011**		**0.095**		**0.12**		NA		NA		NA	
BB1AEX251	BB1AEX251[0.0]	C7	26-Jul-13	**0.065**		**0.0054**	**/J**	**0.070**		**0.0039**	**/J**	**0.012**	**/J**	ND(0.018)		**0.077**		**0.10**		NA		NA		NA	
BB1AEX252	BB1AEX252[0.0]	C6	26-Jul-13	ND(0.0055)		ND(0.0055)		ND(0.0055)		ND(0.0055)		ND(0.0055)		ND(0.0055)		ND(0.0055)		ND(0.0055)		NA		NA		NA	
BB1AEX253	BB1AEX253[0.0]	D7	26-Jul-13	**0.093**		**0.0083**		**0.11**		**0.0038**	**/J**	**0.027**		**0.0034**	**/J**	**0.084**		**0.14**		NA		NA		NA	
BB1AEX254	BB1AEX254[0.0]	D6	26-Jul-13	**0.053**		**0.0034**	**/J**	**0.11**		**0.0062**		**0.012**		**0.01**		**0.13**		**0.12**		NA		NA		NA	
BB1AEX265	BB1AEX265[0.0]	B11	29-Jul-13	**0.0026**	**/J**	ND(0.0054)		**0.0046**	**/J**	ND(0.0054)		**0.0014**	**/J**	ND(0.0054)		**0.0043**	**/J**	**0.0053**	**/J**	NA		NA		NA	
BB1AEX266	BB1AEX266[0.0]	B10	29-Jul-13	**0.12**	**J**	**0.025**	**J**	**0.25**	**J**	**0.018**	**J**	**0.083**	**J**	**0.019**	**J**	**0.25**	**J**	**0.26**	**J**	NA		NA		NA	
BB1AEX266	DUP072913	B10	29-Jul-13	**0.31**	**J**	**0.055**	**J**	**0.62**	**J**	**0.036**	**J**	**0.17**	**J**	**0.032**	**J**	**0.48**	**J**	**0.63**	**J**	NA		NA		NA	
BB1AEX267	BB1AEX267[0.0]	B9	29-Jul-13	**0.29**		**0.055**		**0.6**		**0.034**		**0.18**		**0.036**		**0.54**		**0.60**		NA		NA		NA	
BB1AEX268	BB1AEX268[0.0]	B8	29-Jul-13	**0.011**		**0.0018**	**/J**	**0.021**		ND(0.0054)		**0.0069**		**0.0014**	**/J**	**0.017**		**0.026**		NA		NA		NA	
~~BB1AEX269~~	~~BB1AEX269[0.0]~~	~~B7~~	~~29-Jul-13~~	~~**6.0**~~		~~**0.63**~~		~~**13**~~		~~**1.6**~~		~~**2.3**~~		~~**9.0**~~		~~**22**~~		~~**15**~~		~~NA~~		~~NA~~		~~NA~~	
BB1AEX270	BB1AEX270[0.0]	D5	29-Jul-13	**0.041**		**0.003**	**/J**	**0.055**		**0.0043**	**/J**	**0.011**		**0.0067**		**0.066**		**0.08**		NA		NA		NA	
~~BB1AEX271~~	~~BB1AEX271[0.0]~~	~~C3~~	~~29-Jul-13~~	~~**0.82**~~		~~**0.12**~~		~~**1.9**~~		~~**0.18**~~		~~**0.38**~~		~~**0.99**~~		~~**2.9**~~		~~**2.0**~~		~~NA~~		~~NA~~		~~NA~~	
BB1AEX276	BB1AEX276[0.0]	B6	30-Jul-13	**0.028**		**0.0059**		**0.058**		**0.0033**	**/J**	**0.019**		**0.004**	**/J**	**0.053**		**0.055**		NA		NA		NA	
BB1AEX277	BB1AEX277[0.0]	B5	30-Jul-13	ND(0.0055)		ND(0.0055)		ND(0.0055)		ND(0.0055)		ND(0.0055)		ND(0.0055)		ND(0.0055)		ND(0.0055)		NA		NA		NA	
BB1AEX280	BB1AEX280[0.0]	C3	02-Aug-13	**0.073**		**0.0059**		**0.13**		**0.016**		**0.023**		**0.025**		**0.19**		**0.16**		NA		NA		NA	
BB1AEX281	BB1AEX281[0.0]	C4	02-Aug-13	**0.10**		**0.016**	**/J**	**0.24**		**0.019**		**0.055**		**0.038**		**0.30**		**0.22**		NA		NA		NA	
BB1AEX282	BB1AEX282[0.0]	C5	02-Aug-13	**0.054**		**0.009**		**0.11**		**0.0071**		**0.027**		**0.0064**		**0.091**		**0.10**		NA		NA		NA	
~~BB1AEX283~~	~~BB1AEX283[0.0]~~	~~B4~~	~~02-Aug-13~~	~~**0.43**~~		~~**0.059**~~		~~**1.0**~~		~~**0.11**~~		~~**0.20**~~		~~**0.63**~~		~~**1.8**~~		~~**1.0**~~		~~NA~~		~~NA~~		~~NA~~	
BB1AEX286	BB1AEX286[0.0]	B7	02-Aug-13	**0.0037**	**/J**	ND(0.0060)		**0.0062**		ND(0.0060)		**0.0028**	**/J**	ND(0.0060)		**0.0045**	**/J**	**0.0072**		NA		NA		NA	
BB1AEX286	DUP080213	B7	02-Aug-13	**0.0026**	**/J**	ND(0.0059)		**0.0039**	**/J**	ND(0.0059)		**0.0022**	**/J**	ND(0.0059)		**0.0027**	**/J**	**0.005**	**/J**	NA		NA		NA	
BB1AEX291	BB1AEX291[0.5]	B4	07-Aug-13	ND(0.0056)		ND(0.0056)		ND(0.0056)		ND(0.0056)		ND(0.0056)		ND(0.0056)		ND(0.0056)		**0.0012**	**/J**	NA		NA		NA	

Abbreviations, definitions and notes:
NA = Not analyzed.
Qual = data qualifier
mg/kg = milligrams per kilogram
ND(0.0055) = not detected at reporting limit indicated in parentheses
/J = Data qualifier indicating that result is and estimated value.
Values outlined in a box indicate that detected concentration exceeds the cleanup l
Results shown in red font and ~~struck out~~ represent soil that has been over-excavat

TABLE 5

CONFIRMATION SOIL SAMPLE ANALYTICAL RESULTS
Ecological Buffer Zone and Colma Formation
BBDA 1A Construction Completion Report, Presidio of San Francisco, California

		Analyte	4,4'-DDT	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene	Benzo(a)pyrene	Benzo(b) fluoranthene	Benzo(g,h,i) perylene	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h) anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene
		Cleanup Level	0.53 mg/kg	40 mg/kg	40 mg/kg	40 mg/kg	40 mg/kg	2.5 mg/kg	0.25 mg/kg	2.5 mg/kg	40 mg/kg	25 mg/kg	40 mg/kg	0.25 mg/kg	40 mg/kg	40 mg/kg	2.5 mg/kg
Station Name	Sample Number	Cell ID	Sample Date	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual
BB1AEX232	BB1AEX232[0.0]	A4	02-Jul-13	NA	ND(0.0055)	ND(0.0055)	**0.0012 /J**	ND(0.0055)	**0.0017 /J**	**0.0022 /J**	**0.0032 /J**	**0.0023 /J**	ND(0.0055)	**0.003 /J**	ND(0.0055)	**0.0069**	ND(0.0055)	**0.0024 /J**
~~BB1AEX245~~	~~BB1AEX245[0.0]~~	~~C1~~	~~23-Jul-13~~	~~ND(0.0035)~~	~~0.0067~~	~~0.003 /J~~	~~0.096~~	~~0.095~~	~~0.59~~	~~0.61~~	~~0.63~~	~~0.25~~	~~0.25~~	~~0.68~~	~~0.10~~	~~1.0~~	~~0.017~~	~~0.30~~
BB1AEX246	BB1AEX246[0.0]	C1	23-Jul-13	ND(0.0038) UJ	**0.0023 /J**	**0.0012 /J**	**0.012**	**0.0072**	**0.039 J**	**0.043 J**	**0.051 J**	**0.033 J**	**0.022 J**	**0.06 J**	**0.0086**	**0.097 J**	**0.0041 /J**	**0.028**
BB1AEX246	DUP072313	C1	23-Jul-13	ND(0.0038)	**0.0012 /J**	ND(0.0058)	**0.0081**	**0.0032 /J**	**0.017 J**	**0.023 J**	**0.026 J**	**0.019 J**	**0.0083 J**	**0.025 J**	**0.0054 /J**	**0.041 J**	**0.0016 /J**	**0.017**
BB1AEX255	BB1AEX255[0.0]	A10	26-Jul-13	NA	**0.0033 /J**	**0.0019 /J**	**0.021**	**0.017**	**0.055**	**0.089**	**0.12**	**0.022**	**0.032**	**0.082**	**0.0069**	**0.14**	**0.0091**	**0.026**
~~BB1AEX256~~	~~BB1AEX256[0.0]~~	~~A9~~	~~26-Jul-13~~	~~NA~~	~~0.038 J-/J~~	~~0.055 J-/J~~	~~0.42 J-~~	~~0.56 J-~~	~~2.2 J-~~	~~3.1 J-~~	~~4.3 J-~~	~~0.58 J-~~	~~0.87 J-~~	~~2.3 J-~~	~~0.17 J-~~	~~4.0 J-~~	~~0.21 J-~~	~~0.64 J-~~
~~BB1AEX257~~	~~BB1AEX257[0.0]~~	~~A8~~	~~26-Jul-13~~	~~NA~~	~~0.087~~	~~0.023 /J~~	~~0.16~~	~~0.075~~	~~0.36~~	~~0.46~~	~~0.59~~	~~0.39~~	~~0.22~~	~~0.66~~	~~0.087~~	~~1.2~~	~~0.098~~	~~0.31~~
BB1AEX258	BB1AEX258[0.0]	A15	26-Jul-13	NA	**0.0015 /J**	ND(0.0058)	**0.009**	**0.0051 /J**	**0.021**	**0.023**	**0.032**	**0.024**	**0.011**	**0.032**	**0.006**	**0.033**	**0.0021 /J**	**0.018**
~~BB1AEX259~~	~~BB1AEX259[0.0]~~	~~A11~~	~~26-Jul-13~~	~~NA~~	~~0.057 J~~	~~0.022 J/J~~	~~0.17 J~~	~~0.12 J~~	~~0.43 J~~	~~0.52 J~~	~~0.57 J~~	~~0.34 J~~	~~0.22 J~~	~~0.63 J~~	~~0.081 J~~	~~1 J~~	~~0.1 J~~	~~0.28 J~~
~~BB1AEX259~~	~~DUP072613~~	~~A11~~	~~26-Jul-13~~	~~NA~~	~~0.0058 J~~	~~0.0031 J/J~~	~~0.03 J~~	~~0.023 J~~	~~0.07 J~~	~~0.097 J~~	~~0.11 J~~	~~0.04 J~~	~~0.029 J~~	~~0.099 J~~	~~0.012 J~~	~~0.19 J~~	~~0.013 J~~	~~0.043 J~~
BB1AEX260	BB1AEX260[0.0]	A14	29-Jul-13	NA	ND(0.0053)	ND(0.0053)	ND(0.0053)	ND(0.0053)	**0.0023 /J**	**0.0025 /J**	**0.0034 /J**	**0.0023 /J**	**0.0013 /J**	**0.0034 /J**	ND(0.0053)	**0.0054**	ND(0.0053)	**0.0015 /J**
~~BB1AEX261~~	~~BB1AEX261[0.0]~~	~~A13~~	~~29-Jul-13~~	~~NA~~	~~0.029~~	~~0.013 /J~~	~~0.16~~	~~0.083~~	~~0.40~~	~~0.52~~	~~0.66~~	~~0.28~~	~~0.26~~	~~0.72~~	~~0.084~~	~~1.2~~	~~0.058~~	~~0.29~~
BB1AEX262	BB1AEX262[0.0]	B13	29-Jul-13	NA	**0.0028 /J**	**0.0013 /J**	**0.019**	**0.010**	**0.035**	**0.055**	**0.064**	**0.047**	**0.021**	**0.053**	**0.013**	**0.11**	**0.0048 /J**	**0.044**
BB1AEX263	BB1AEX263[0.0]	B12	29-Jul-13	NA	**0.0012 /J**	ND(0.0054)	ND(0.0054)	ND(0.0054)	**0.0031 /J**	**0.0045 /J**	**0.0058**	**0.0035 /J**	**0.0027 /J**	**0.0063**	ND(0.0054)	**0.012**	ND(0.0054)	**0.0029 /J**
BB1AEX264	BB1AEX264[0.0]	A12	29-Jul-13	NA	ND(0.0056)	ND(0.0056)	**0.0029 /J**	**0.0013 /J**	**0.0078**	**0.011**	**0.013**	**0.0079**	**0.0053 /J**	**0.014**	**0.002 /J**	**0.024**	ND(0.0056)	**0.0066**
BB1AEX272	BB1AEX272[0.0]	C1	30-Jul-13	ND(0.0033)	**0.0014 /J**	ND(0.0051)	**0.0017 /J**	ND(0.0051)	**0.0039 /J**	**0.0058**	**0.0074**	**0.005 /J**	**0.0025 /J**	**0.0073**	**0.0014 /J**	**0.015**	ND(0.0051)	**0.0045 /J**
~~BB1AEX273~~	~~BB1AEX273[0.0]~~	~~B2~~	~~30-Jul-13~~	~~NA~~	~~1.8~~	~~0.31~~	~~1.9~~	~~1.1~~	~~3.4~~	~~4.5~~	~~5.5~~	~~2.9~~	~~1.8~~	~~5.9~~	~~0.96~~	~~14~~	~~1.4~~	~~2.9~~
~~BB1AEX274~~	~~BB1AEX274[0.0]~~	~~A7~~	~~30-Jul-13~~	~~NA~~	~~1.3~~	~~0.30 /J~~	~~2.6~~	~~1.2~~	~~4.5~~	~~6.4~~	~~7.7~~	~~4.5~~	~~2.5~~	~~7.3~~	~~1.4~~	~~18~~	~~1.3~~	~~4.3~~
~~BB1AEX275~~	~~BB1AEX275[0.0]~~	~~A6~~	~~30-Jul-13~~	~~NA~~	~~3.7~~	~~0.67~~	~~4.0~~	~~2.3~~	~~7.5~~	~~9.8~~	~~12~~	~~6.3~~	~~3.6~~	~~11~~	~~2.1~~	~~28~~	~~2.8~~	~~6.3~~
BB1AEX278	BB1AEX278[0.0]	B2	02-Aug-13	NA	**0.013**	**0.004 /J**	**0.046**	**0.026**	**0.077**	**0.110**	**0.15**	**0.064**	**0.047**	**0.13**	**0.022**	**0.27**	**0.014**	**0.067**
BB1AEX279	BB1AEX279[0.0]	B3	02-Aug-13	NA	**0.033**	**0.005 /J**	**0.046**	**0.023**	**0.069**	**0.097**	**0.12**	**0.058**	**0.039**	**0.12**	**0.02**	**0.26**	**0.023**	**0.059**
~~BB1AEX284~~	~~BB1AEX284[0.0]~~	~~A6~~	~~02-Aug-13~~	~~NA~~	~~0.089~~	~~0.019~~	~~0.12~~	~~0.063~~	~~0.26~~	~~0.41~~	~~0.57~~	~~0.074~~	~~0.16~~	~~0.42~~	~~0.025~~	~~0.76~~	~~0.084~~	~~0.091~~
~~BB1AEX285~~	~~BB1AEX285[0.0]~~	~~A7~~	~~02-Aug-13~~	~~NA~~	~~0.17~~	~~0.036 /J~~	~~0.18~~	~~0.091~~	~~0.43~~	~~0.57~~	~~0.65~~	~~0.48~~	~~0.27~~	~~0.76~~	~~0.10~~	~~1.5~~	~~0.16~~	~~0.39~~
BB1AEX287	BB1AEX287[0.0]	A8	02-Aug-13	NA	ND(0.0053)	ND(0.0053)	ND(0.0053)	ND(0.0053)	ND(0.0053)	ND(0.0053)	ND(0.0053)	ND(0.0053)	ND(0.0053)	ND(0.0053)	ND(0.0053)	ND(0.0053)	ND(0.0053)	ND(0.0053)
BB1AEX288	BB1AEX288[0.0]	A9	02-Aug-13	NA	ND(0.0053)	ND(0.0053)	**0.0032 /J**	**0.0015 /J**	**0.0075**	**0.011**	**0.013**	**0.0067**	**0.0046 /J**	**0.012**	**0.0017 /J**	**0.023**	ND(0.0053)	**0.0067**
BB1AEX289	BB1AEX289[0.0]	A11	02-Aug-13	NA	ND(0.0054)	ND(0.0054)	**0.0029 /J**	**0.0024 /J**	**0.010**	**0.013**	**0.015**	**0.0063**	**0.0035 /J**	**0.011**	**0.0015 /J**	**0.025**	**0.0014 /J**	**0.006**
BB1AEX290	BB1AEX290[0.0]	A13	02-Aug-13	NA	ND(0.0057)	ND(0.0057)	ND(0.0057)	ND(0.0057)	**0.0013 /J**	**0.0015 /J**	**0.0022 /J**	ND(0.0057)	ND(0.0057)	**0.0023 /J**	ND(0.0057)	**0.004 /J**	ND(0.0057)	ND(0.0057)
BB1AEX292	BB1AEX292[1.0]	A6	07-Aug-13	NA	**0.0013 /J**	ND(0.0053)	**0.0024 /J**	**0.0016 /J**	**0.0070**	**0.010**	**0.013**	**0.0057**	**0.0039 /J**	**0.011**	**0.0016 /J**	**0.019**	**0.0011 /J**	**0.0053 /J**
BB1AEX293	BB1AEX293[1.0]	A7	07-Aug-13	NA	ND(0.0053)	ND(0.0053)	ND(0.0053)	ND(0.0053)	ND(0.0053)	ND(0.0053)	**0.0012 /J**	ND(0.0053)	ND(0.0053)	ND(0.0053)	ND(0.0053)	**0.0013 /J**	ND(0.0053)	ND(0.0053)
BB1AEX294	BB1AEX294[0.0]	A7	07-Aug-13	NA	ND(0.0053)	ND(0.0053)	ND(0.0053)	ND(0.0053)	ND(0.0053)	**0.0016 /J**	**0.0022 /J**	ND(0.0053)	ND(0.0053)	**0.0018 /J**	ND(0.0053)	**0.0028 /J**	ND(0.0053)	ND(0.0053)
BB1AEX295	BB1AEX295[0.0]	A6	07-Aug-13	NA	ND(0.0053)	ND(0.0053)	ND(0.0053)	**0.0014 /J**	**0.0018 /J**	**0.0021 /J**	**0.0029 /J**	ND(0.0053)	ND(0.0053)	**0.0023 /J**	ND(0.0053)	**0.0036 /J**	ND(0.0053)	ND(0.0053)

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U= Not detected.

Notes:
Values outlined in a box indicate that detected concentration exceeds the cleanup level.
Results shown in red font and ~~struck out~~ represent soil that has been over-excavated and resampled. Accordingly, those results are not considered representative of final confirmation soil sample results.

TABLE 5

CONFIRMATION SOIL SAMPLE ANALYTICAL RESULTS
Ecological Buffer Zone and Colma Formation
BBDA 1A Construction Completion Report, Presidio of San Francisco, California

		Analyte	Naphthalene	Phenanthrene	Pyrene	Copper	Lead	Silver	Zinc
		Cleanup Level	40 mg/kg	40 mg/kg	40 mg/kg	120 mg/kg	300 mg/kg	2 mg/kg	160 mg/kg
Station Name	Sample Number	Cell ID	Sample Date	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual
BB1AEX232	BB1AEX232[0.0]	A4	02-Jul-13	ND(0.0055)	**0.0079**	**0.0063**	NA	NA	NA	NA
~~BB1AEX245~~	~~BB1AEX245[0.0]~~	~~C1~~	~~23-Jul-13~~	~~**0.009**~~	~~**0.49**~~	~~**1.0**~~	~~**16.**~~	~~**19.**~~	~~**0.098 /J**~~	~~**46.**~~
BB1AEX246	BB1AEX246[0.0]	C1	23-Jul-13	**0.0029 /J**	**0.086 J**	**0.13 J**	**23.**	**120. J**	**0.24 /J**	**88.**
BB1AEX246	DUP072313	C1	23-Jul-13	**0.0016 /J**	**0.027 J**	**0.045 J**	**19.**	**22. J**	**0.18 /J**	**60.**
BB1AEX255	BB1AEX255[0.0]	A10	26-Jul-13	**0.0087**	**0.15**	**0.19**	NA	NA	NA	NA
~~BB1AEX256~~	~~BB1AEX256[0.0]~~	~~A9~~	~~26-Jul-13~~	~~**0.066 J /J**~~	~~**3.1 J**~~	~~**6.9 J**~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~
~~BB1AEX257~~	~~BB1AEX257[0.0]~~	~~A8~~	~~26-Jul-13~~	~~**0.17**~~	~~**1.4**~~	~~**1.4**~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~
BB1AEX258	BB1AEX258[0.0]	A15	26-Jul-13	**0.0023 /J**	**0.031**	**0.056**	NA	NA	NA	NA
~~BB1AEX259~~	~~BB1AEX259[0.0]~~	~~A11~~	~~26-Jul-13~~	~~**0.14 J**~~	~~**1.1 J**~~	~~**1.3 J**~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~
~~BB1AEX259~~	~~DUP072613~~	~~A11~~	~~26-Jul-13~~	~~**0.014 J**~~	~~**0.18 J**~~	~~**0.23 J**~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~
BB1AEX260	BB1AEX260[0.0]	A14	29-Jul-13	ND(0.0053)	**0.0039 /J**	**0.0059**	NA	NA	NA	NA
~~BB1AEX261~~	~~BB1AEX261[0.0]~~	~~A13~~	~~29-Jul-13~~	~~**0.048**~~	~~**1.2**~~	~~**1.4**~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~
BB1AEX262	BB1AEX262[0.0]	B13	29-Jul-13	**0.0062**	**0.087**	**0.10**	NA	NA	NA	NA
BB1AEX263	BB1AEX263[0.0]	B12	29-Jul-13	**0.0031 /J**	**0.015**	**0.014**	NA	NA	NA	NA
BB1AEX264	BB1AEX264[0.0]	A12	29-Jul-13	ND(0.0056)	**0.019**	**0.026**	NA	NA	NA	NA
BB1AEX272	BB1AEX272[0.0]	C1	30-Jul-13	ND(0.0051)	**0.014**	**0.014**	ND(0.26)	**2.8**	ND(0.26)	**14.**
~~BB1AEX273~~	~~BB1AEX273[0.0]~~	~~B2~~	~~30-Jul-13~~	~~**3**~~	~~**19**~~	~~**13**~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~
~~BB1AEX274~~	~~BB1AEX274[0.0]~~	~~A7~~	~~30-Jul-13~~	~~**2.8**~~	~~**20**~~	~~**16**~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~
~~BB1AEX275~~	~~BB1AEX275[0.0]~~	~~A6~~	~~30-Jul-13~~	~~**7.6**~~	~~**34**~~	~~**24**~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~
BB1AEX278	BB1AEX278[0.0]	B2	02-Aug-13	**0.018**	**0.27**	**0.27**	NA	NA	NA	NA
BB1AEX279	BB1AEX279[0.0]	B3	02-Aug-13	**0.054**	**0.35**	**0.26**	NA	NA	NA	NA
~~BB1AEX284~~	~~BB1AEX284[0.0]~~	~~A6~~	~~02-Aug-13~~	~~**0.14**~~	~~**1.0**~~	~~**0.93**~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~
~~BB1AEX285~~	~~BB1AEX285[0.0]~~	~~A7~~	~~02-Aug-13~~	~~**0.36**~~	~~**2.0**~~	~~**1.6**~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~
BB1AEX287	BB1AEX287[0.0]	A8	02-Aug-13	ND(0.0053)	ND(0.0053)	ND(0.0053)	NA	NA	NA	NA
BB1AEX288	BB1AEX288[0.0]	A9	02-Aug-13	**0.0012 /J**	**0.015**	**0.024**	NA	NA	NA	NA
BB1AEX289	BB1AEX289[0.0]	A11	02-Aug-13	**0.0014 /J**	**0.016**	**0.027**	NA	NA	NA	NA
BB1AEX290	BB1AEX290[0.0]	A13	02-Aug-13	ND(0.0057)	**0.0052 /J**	**0.0046 /J**	NA	NA	NA	NA
BB1AEX292	BB1AEX292[1.0]	A6	07-Aug-13	**0.0026 /J**	**0.020**	**0.024**	NA	NA	NA	NA
BB1AEX293	BB1AEX293[1.0]	A7	07-Aug-13	ND(0.0053)	**0.0014 /J**	**0.0019 /J**	NA	NA	NA	NA
BB1AEX294	BB1AEX294[0.0]	A7	07-Aug-13	ND(0.0053)	**0.003 /J**	**0.0038 /J**	NA	NA	NA	NA
BB1AEX295	BB1AEX295[0.0]	A6	07-Aug-13	ND(0.0053)	**0.0051 /J**	**0.0042 /J**	NA	NA	NA	NA

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Notes:
Values outlined in a box indicate that detected concentration exceeds the cleanup level.
Results shown in red font and ~~struck out~~ represent soil that has been over-excavated and resampled. Accordingly, those results are not considered representative of final confirmation soil sample results.

TABLE 6

CONFIRMATION SOIL SAMPLE ANALYTICAL RESULTS
Ecological Special Status Species Zone and Serpentinite Soil
BBDA 1A Construction Completion Report, Presidio of San Francisco, California

			Analyte Cleanup Level	2-Methylnaphthalene 30 mg/kg		4,4'-DDT 0.0082 mg/kg		Acenaphthene 30 mg/kg		Acenaphthylene 30 mg/kg		Anthracene 30 mg/kg		Benzo(a)anthracene 2.5 mg/kg		Benzo(a)pyrene 0.25 mg/kg		Benzo(b)fluoranthene 2.5 mg/kg	
Station Name	Sample Number	Cell ID	Sample Date	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual
BB1AEX248	BB1AEX248[0.0]	D1	25-Jul-13	ND(0.0057)		ND(0.0038)	UJ	ND(0.0057)		**0.012**		**0.0077**		**0.027**		**0.045**		**0.052**	
BB1AEX249	BB1AEX249[0.0]	D2	25-Jul-13	ND(0.0055)		NA		ND(0.0055)		**0.0069**		**0.0045**	**/J**	**0.011**		**0.022**	**J**	**0.026**	**J**
BB1AEX249	DUP072513	D2	25-Jul-13	ND(0.0056)		NA		ND(0.0056)		**0.0025**	**/J**	**0.0012**	**/J**	**0.0029**	**/J**	**0.005**	**J/J**	**0.0059**	**J**

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TABLE 6

CONFIRMATION SOIL SAMPLE ANALYTICAL RESULTS
Ecological Special Status Species Zone and Serpentinite Soil
BBDA 1A Construction Completion Report, Presidio of San Francisco, California

			Analyte Cleanup Level	Benzo(g,h,i)perylene 30 mg/kg		Benzo(k)fluoranthene 25 mg/kg		Chrysene 30 mg/kg		Dibenzo(a,h)anthracene 0.25 mg/kg		Fluoranthene 30 mg/kg		Fluorene 30 mg/kg		Indeno(1,2,3-cd)pyrene 2.5 mg/kg		Naphthalene 30 mg/kg	
Station Name	Sample Number	Cell ID	Sample Date	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual
BB1AEX248	BB1AEX248[0.0]	D1	25-Jul-13	**0.033**		**0.016**		**0.033**		**0.0081**		**0.051**		**0.0032**	**/J**	**0.030**		**0.002**	**/J**
BB1AEX249	BB1AEX249[0.0]	D2	25-Jul-13	**0.020**	**J**	**0.0062**		**0.013**		**0.0042**	**/J**	**0.029**	**J**	**0.0027**	**/J**	**0.017**	**J**	**0.0037**	**/J**
BB1AEX249	DUP072513	D2	25-Jul-13	**0.0048**	**J/J**	**0.0016**	**/J**	**0.0042**	**/J**	ND(0.0056)		**0.0079**	**J**	ND(0.0056)		**0.0039**	**J/J**	ND(0.0056)	

Abbreviations and definitions:
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Qual = data qualifier
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ND(0.0055) = not detected at reporting limit indicated in pa
/J = Data qualifier indicating that result is and estimated val
Notes:
Values outlined in a box indicate that detected concentration exceeds the cleanup level.

TABLE 6

CONFIRMATION SOIL SAMPLE ANALYTICAL RESULTS
Ecological Special Status Species Zone and Serpentinite Soil
BBDA 1A Construction Completion Report, Presidio of San Francisco, California

			Analyte Cleanup Level	Phenanthrene 30 mg/kg		Pyrene 30 mg/kg		Copper 85 mg/kg		Lead 160 mg/kg		Silver 2 mg/kg		Zinc 160 mg/kg	
Station Name	Sample Number	Cell ID	Sample Date	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual
BB1AEX248	BB1AEX248[0.0]	D1	25-Jul-13	**0.036**		**0.059**		**12.**		**18.**		**0.078**	**/J**	**73.**	
BB1AEX249	BB1AEX249[0.0]	D2	25-Jul-13	**0.025**	**J**	**0.031**	**J**	NA		NA		NA		NA	
BB1AEX249	DUP072513	D2	25-Jul-13	**0.0075**	**J**	**0.0088**	**J**	NA		NA		NA		NA	

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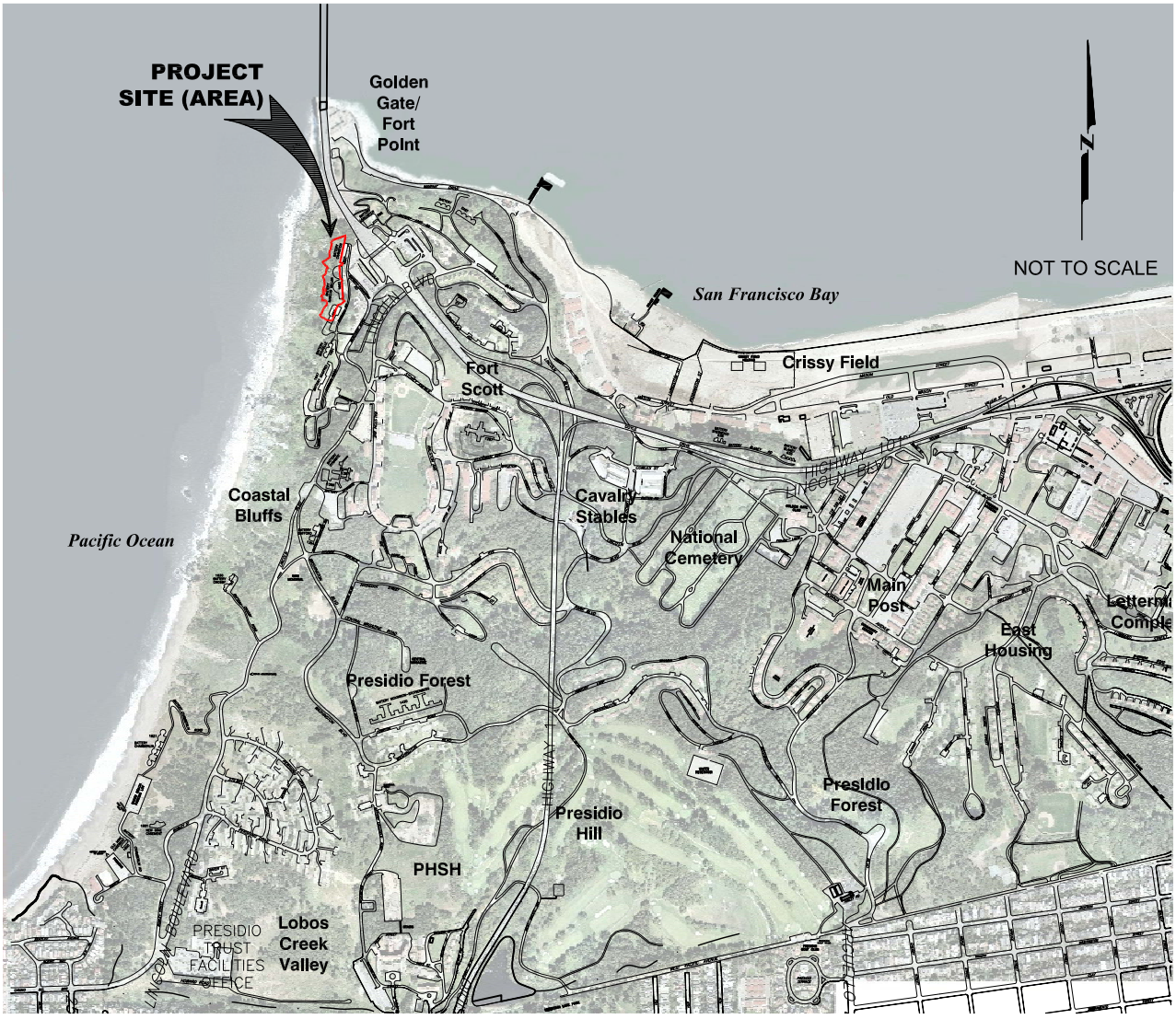
mg/kg = milligrams per kilogram
ND(0.0055) = not detected at reporting limit indicated in pa
/J = Data qualifier indicating that result is and estimated val
Notes:
Values outlined in a box indicate that detected concentration exceeds the cleanup level.

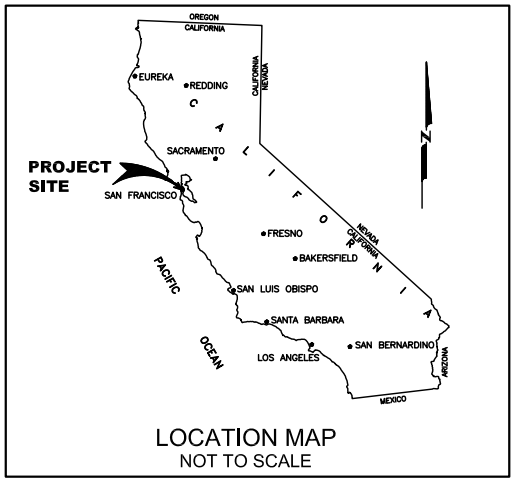
FIGURES

S:\OD13\164640\164640.06\110113comp\COMP RPRT\FIGS_FIG-01.DWG



LEGEND

Baker Beach Disturbed Area 1A (BBDA 1A)
Project Area



LOCATION MAP
NOT TO SCALE

SITE LOCATION MAP
Construction Completion Report
Remedial Design Implementation
Baker Beach Disturbed Area 1A
Presidio of San Francisco, California

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By: ADC Date: 12/05/13

Project No. OD13164640

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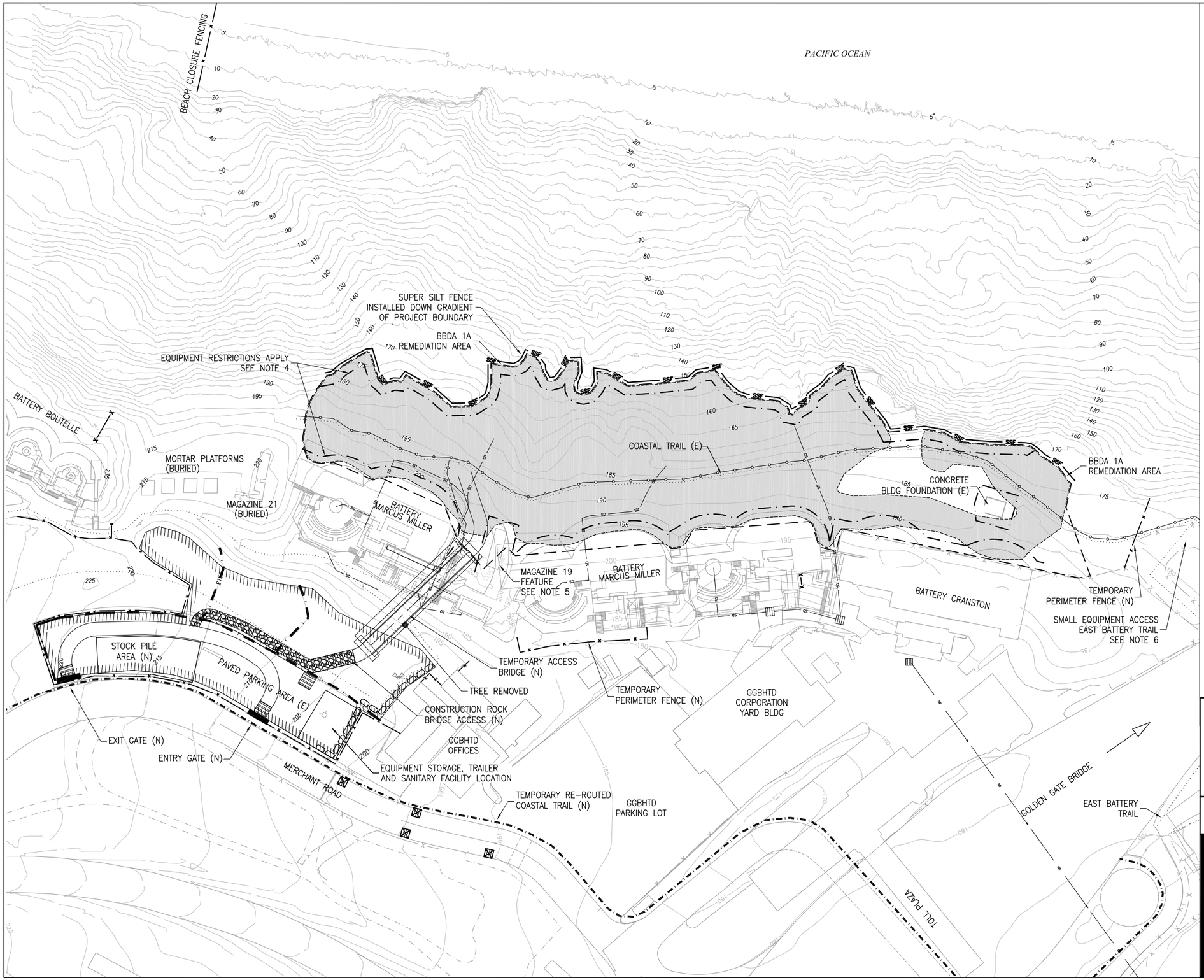
FIGURE 1



LEGEND

- TOPOGRAPHIC CONTOUR, ELEVATION IN FEET
- LIMITS OF BAKER BEACH DISTURBED AREA 1A (BBDA 1A) REMEDIATION AREA
- LIMITS OF BBDA 1A REMEDIAL EXCAVATION AREA
- COASTAL TRAIL, EXISTING
- POST AND CABLE FENCE
- TEMPORARY PERIMETER FENCE / LIMITS OF WORK
- EQUIPMENT RESTRICTION ZONE
- STAGING AREA
- ROCK CONSTRUCTION ENTRANCE
- CONTAMINANT REDUCTION ZONE (CRZ)
- SD — STORM DRAIN LINE
- STORM DRAIN INLET PROTECTION
- SSF — SUPER SILT FENCE
- STRAW WATTLE
- GRAVEL BAGS

NOTES:

1. TEMPORARY PERIMETER FENCING WAS INSTALLED AROUND SITE. LOCKABLE GATES FOR INGRESS AND EGRESS WERE PROVIDED.
2. EQUIPMENT STORAGE, REFUELING, TRAILER, AND SANITARY FACILITY LOCATIONS ONSITE WERE LOCATED IN STAGING AREA.
3. SUITABLE CONTROLS FOR STOCKPILE AREA (STRAW WATTLE, PLASTIC GROUND COVER, AND TARP) WERE PROVIDED.
4. CONTRACTOR SHALL NOT OPERATE, STORE, OR MOVE EQUIPMENT WITHIN 10 FEET OF EXISTING STRUCTURES AND/OR THE EDGE OF THE BLUFF PER THE SPECIFICATIONS. CONSTRUCTION WORK PERFORMED WITHIN THE EQUIPMENT RESTRICTION ZONE SHOWN MAY BE PERFORMED WITH EQUIPMENT RESTING OUTSIDE THE ZONE AND WILL REQUIRE A SPOTTER TO BE PRESENT DURING WORK TO VERIFY SAFE OPERATIONS.
5. ASSUMED AREA OF MAGAZINE INVESTIGATION SOIL BORING REFUSAL. THIS AREA HAS BEEN DESIGNATED A CONTRIBUTING CULTURAL RESOURCE.
6. CONTRACTOR COORDINATED WITH THE TRUST FOR SMALL EQUIPMENT ACCESS VIA THE EAST BATTERY TRAIL. THE TRUST COORDINATED WITH THE GGBHTD AND NPS AS REQUIRED.
7. CONTRACTOR COORDINATED INSTALLATION OF THE TEMPORARY FENCING EAST OF BATTERY MARCUS MILLER WITH THE TRUST SO THAT THE GGBHTD MAINTAINED ACCESS TO THEIR FACILITIES AS NEEDED.
8. SITE TOPOGRAPHY AND SITE FEATURES PROVIDED BY PRESIDIO TRUST AS PERFORMED BY TOWILL, INC., APRIL 12, 2012.

N

50 0 50 100

SCALE IN FEET

SITE STAGING, ACCESS CONTROL, AND EROSION CONTROL MEASURES PLAN
Construction Completion Report
Remedial Design Implementation
Baker Beach Disturbed Area 1A
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FIGURE 2

S:\OD13\164640\164640.06\110113comp\COMP RPRT\FIGS_FIG-02.DWG

Project Organizational Chart
(Baker Beach Disturbed Area 1A)

Department of Toxic Substances Control (DTSC)
Robert Boggs P.E.,
(510) 540-3751

Presidio Trust
Eileen Fanelli
Project Manager
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National Park Service (NPS)
Brian Ullensvang,
Remediation Manager
(415) 561-4726

Roux Associates, Inc.
Angela Liang Cutting PhD. P.E.,
Technical Project Manager
(415) 597-6014

Public Information Coordinator
Parks Conservancy
Jennifer Greene
(415) 561-3054

AMEC
Mary Jo Heassler P.G.,
Project Manager
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Construction Manager
Roux Associates, Inc.
Kenneth Kievit
(619) 729-3576

Biological Monitoring
H.T. Harvey

Archaeology Monitoring
(AMEC)

Field Sampling
(AMEC)

Design Engineer (AMEC)
Doug Bablitch P.E.,
(510)663-4169

Remediation Contractor
Ford Construction Company, Inc.
Jerry Middleton
(209)333-1116

CQA Officer (AMEC)
Frank Szerdy PhD. P.E.,
(510)663-4113

Subcontractors

PROJECT ORGANIZATIONAL CHART
Construction Completion Report
Remedial Design Implementation
Baker Beach Disturbed Area 1A
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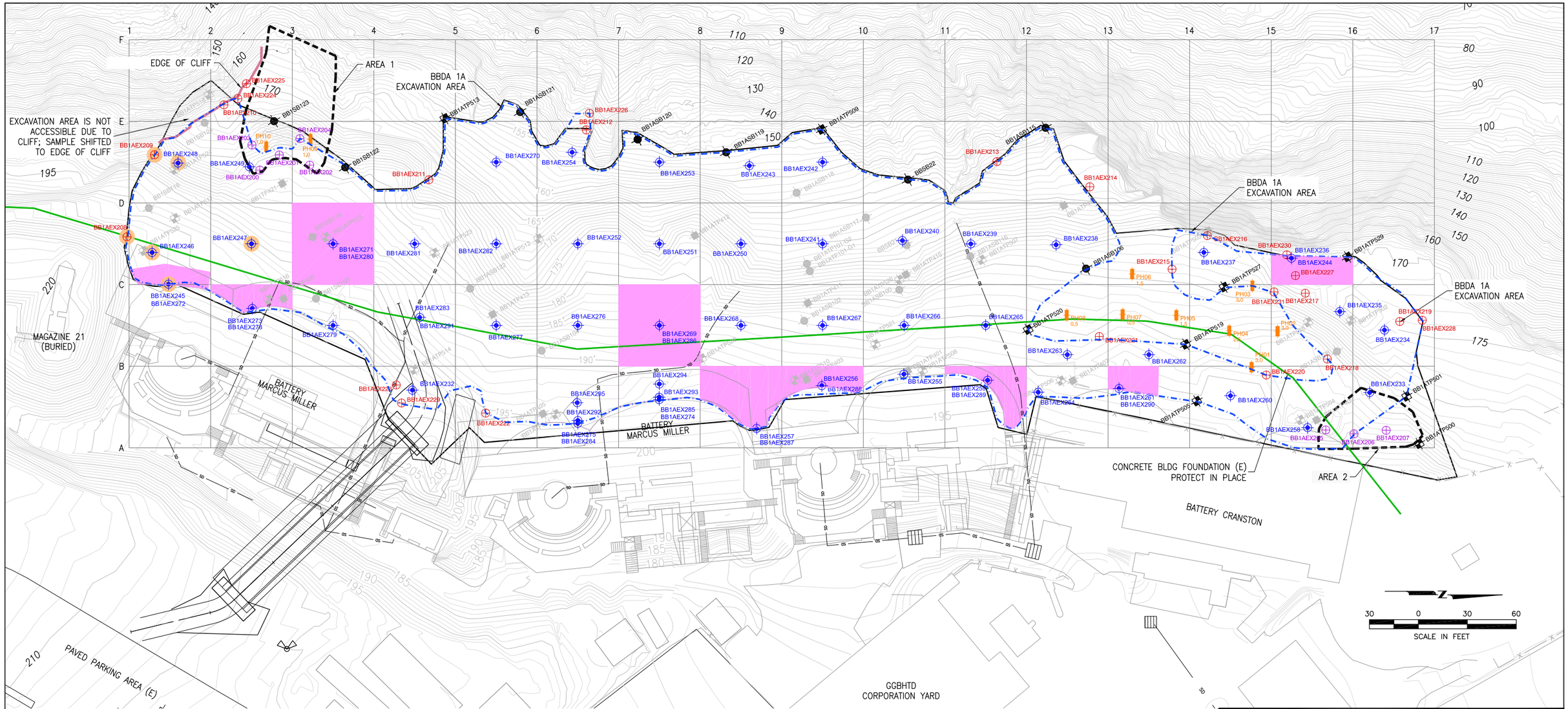
FIGURE 3

S:\OD13\164640\164640.06\110113comp\COMP RPRT\FIGS_FIG-03.DWG



LEGEND

- TOPOGRAPHIC CONTOUR, EXISTING GROUND SURFACE, ELEVATION IN FEET
- TOPOGRAPHIC CONTOUR, EXCAVATION SURFACE, ELEVATION IN FEET
- LIMITS OF BBDA 1A EXCAVATION AREA
- SD — STORM DRAIN PIPE, HISTORIC
- PREVIOUS TEST PITS AND SOIL BORINGS
- PREVIOUS TEST PIT AND SOIL BORINGS TO BE USED AS CONFIRMATION SAMPLES
- CONFIRMATION SAMPLE LOCATIONS
- MARCH – APRIL 2013 PRE–EXCAVATION CONFIRMATION SAMPLES, INCLUDING STEP–OUT SAMPLES
- FEBRUARY 2013 PRE–EXCAVATION CONFIRMATION SAMPLES, NATIVE PLANT HABITAT
- ECO SPECIAL STATUS AND ECO BUFFER ZONE LINE.
- NATIVE PLANT HABITAT AREAS 1 AND 2
- AREAS THAT HAVE BEEN OVER–EXCAVATED
- SAMPLES TO BE ANALYZED FOR METALS COCs. SEE NOTE 2.
- PH08 0.5 — MARCH 2013 PRE–EXCAVATION INVESTIGATION POTHOLES

CELL IDENTIFICATION KEY

E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	E13	E14	E15	E16
D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16
A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16

NOTES:
1. PRE–EXCAVATION CONFIRMATION SAMPLES WERE TAKEN FROM THE GROUND SURFACE.
2. SAMPLES TAKEN WEST OF THE ECO SPECIAL STATUS AND BUFFER ZONE LINE ARE TO BE COMPARED TO ECO–SPECIAL STATUS CLEANUP LEVELS. SAMPLES TAKEN TO THE EAST OF THE LINE ARE TO BE COMPARED TO ECO BUFFER CLEANUP LEVELS.

EXCAVATION CONFIRMATION SAMPLE LOCATIONS AND OVER-EXCAVATION AREAS
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Baker Beach Disturbed Area 1A
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FIGURE 4

S:\OD13\164640\164640.06\110113comp\COMP RPRT\FIGS_FIG-04.DWG